

# amateur radio

Vol. 37, No. 5

MAY, 1969

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# amateur radio

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## COVER STORY

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- Separate detectors for AM and for CW/SSB.
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VHF COMMUNICATIONS, the International Edition, printed in English, of the well established German Publication UKW-BERICHTE, is an Amateur Radio magazine catering especially for the VHF, UHF and Microwave enthusiast.

VHF COMMUNICATIONS will follow the same path as UKW-BERICHTE, by specialising in the publication of exact and extensive assembly instructions for VHF, UHF and Microwave transmitters, receivers, converters, transceivers, antennas, measuring equipment and accessories, which can be easily duplicated. The latest advances in semiconductors, printed circuits and electronic technology are described in great detail. For most articles, all the special components required for the assembly of the described equipment, such as epoxy printed circuit boards, trimmers, coil formers, as well as metal parts and complete kits will be available from the Australasian Representative.

VHF COMMUNICATIONS also features information regarding the development of electronic equipment, measuring methods, as well as technical reports covering new techniques, new components and new equipment for the Amateur.

VHF COMMUNICATIONS is a quarterly, published in February, May, August and November. Each edition contains roughly sixty pages of technical information and articles.

VHF COMMUNICATIONS' subscription rate (air mailed direct from the publisher) is \$5.50 per year. Every copy is dispatched in a sealed envelope to ensure that it arrives in perfect condition.

Some copies of the German edition UKW Berichte are available free for perusal. Subscriptions, either cheque or money order/postal note should be forwarded to the Australasian Representative, Mr. Gordon Clarke, 2 Beaconsview St., Balgowlah, N.S.W., 2083, Australia.



# UKW BERICHTE

ZEITSCHRIFT FÜR DEN VHF/UHF-AMATEUR  
ULTRAKURZWELLEN- UND DEZIMETER-AMATEUR

# Mullard Special Quality Valves

## for Industrial Applications

This chart enables you to identify at a glance the Mullard Special Quality Valve equivalents of C.V. Services Types, American Types and Mullard Standard Types. In addition abridged

data is provided to assist in the selection of the Special Quality Valve most suited to your specific circuit requirements. Further information is available on request.

SPECIAL QUALITY PRODUCTION			DESCRIPTION	STANDARD PRODUCTION		
Mullard Type Number	Services Type Number	American Type Number		Mullard Type Number	Services Type Number	American Type Number
E55L	CV5808	8233	High slope wideband output pentode .. ..	—	—	—
E80CC	CV5989	6085	Double triode for industrial use .. ..	—	—	—
E80CF	—	7943	Triode pentode with separate cathodes ..	ECF80	CV3215	6BL8
E80F	CV2729	6084	Voltage amplifying pentode .. ..	—	—	—
E80L	—	8227	Output pentode .. ..	—	—	—
E81L	—	6686	Output pentode .. ..	—	—	—
E83F	—	6689	Voltage amplifying pentode .. ..	—	—	—
E86C	—	—	U.H.F. triode .. ..	EC86	—	6CM4
E88C	—	—	U.H.F. grounded grid triode .. ..	EC88	—	6DL4
E88CC	CV2492	6922	Double triode for use in computers and cascade circuits .. ..	ECC88	CV3358	6DJ8
E88CC/01	CV2493	—	Double triode for use in computers and cascade circuits .. ..	—	—	—
E90CC	CV5214	5920	Double triode for use in computers .. ..	—	—	—
E91H	—	6687	Dual control heptode for use as a gating valve .. ..	—	—	—
E92CC	—	—	Double triode for use in computers .. ..	—	—	—
E180CC	CV8431	7062	Double triode for use in computers .. ..	—	—	—
E180F	CV3998	6688	High slope wideband amplifying R.F. pentode .. ..	—	—	—
E182CC	CV5766	7119	Double triode for use in computers .. ..	—	—	—
E188F	—	7737	High slope wideband amplifying R.F. pentode .. ..	—	—	—
E188CC	CV5354	7306	Double triode for use as cascade amplifier .. ..	—	—	—
E280F	—	7732	High slope wideband amplifying R.F. pentode .. ..	—	—	—
E288CC	—	—	Double triode .. ..	—	—	—
E810F	CV5809	7788	High slope wideband amplifying pentode .. ..	—	—	—
EC1000	—	8254	Subminiature triode for use in measurement probes .. ..	—	—	—
ECC2000	—	—	Double triode for use as V.H.F. cascade amplifier .. ..	—	—	—
M8079	CV4025	16058	Double diode with separate cathodes .. ..	EB91	CV140	—
M8080	CV4058	16100 8C4WA	R.F. power triode .. ..	EC90	CV133	6C4
M8081	CV4031	16101 8J6WA	V.H.F. double triode with common cathode ..	ECC91	CV858	6J6
M8082	CV4063	16516	Output pentode .. ..	EL91	CV136	—
M8083	CV4014	16064	R.F. pentode with separate g3 .. ..	EP91	CV138	—
M8091	CV4044	16443	Half-wave rectifier designed for operation at high altitudes .. ..	—	—	—
M8098	CV4039	16062	V.H.F. power tetrode .. ..	EY84	CV2235	—
M8097	CV4059	—	Low impedance diode with medium $\mu$ triode ..	QV03-12	CV2129	5763
M8099	CV4070	—	Triode for use as grounded grid amplifier ..	EAC81	CV137	—
M8100	CV4010	16054 8AK5W/8096	Low noise R.F. pentode .. ..	EC91	CV417	—
M8136	CV4063	16189 12AU7WA	Low $\mu$ double triode .. ..	EF95	CV850	6AK5
M8137	CV4004	16057	High $\mu$ double triode .. ..	ECC82	CV491	12AU7
M8161	CV4015	16065	Variable $\mu$ R.F. pentode .. ..	ECC83	CV492	12AX7
M8162	CV4024	112A77WA	Medium $\mu$ double triode .. ..	EF92	CV131	—
M8195	CV4085	—	Low microphony, low hum A.F. voltage amplifying pentode .. ..	ECC81	CV455	12AT7
M8196	CV4011	15725 6AS6W	Dual control pentode .. ..	EF86	CV2901	—
M8212	CV4007	15726 6ALS6W/6097	Double diode with separate cathodes .. ..	6AS6	CV2522	6AS6
M8248	CV5311	16J4WA	U.H.F. grounded grid triode .. ..	6ALS	CV283	6ALS
				EC98	—	16J4

†The American types shown in this chart have the same electrical characteristics as the appropriate Mullard Special Quality type and they may, in general, be regarded as interchangeable. In the case of those types marked † there are, however, certain differences in the test specifications.

# Mullard

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- A.C.-D.C. OPERATION
- INBUILT POWER SUPPLY

### SPECIFICATIONS:

**RECEIVER**  
Frequency Range: 144-148 Mc AM  
Sensitivity: 1 microvolt for 10dB  
S/N at 145.5 Mc  
(0.05 W Audio Output)

Image Ratio: 50 dB at 145.5 Mc  
IF Frequency: 1st IF 44-45 Mc  
2nd IF 10.7 Mc  
3rd IF 455 Kc

Noise Limiting: Automatic  
Squelch: 1 microV-300 microV  
Selectivity: 20 dB down at 10Kc  
Audio Output: 3W 8 ohms  
Input Impedance: 50 ohms (Unbalanced)

**TRANSMITTER**  
Frequency Range: 144-148 Mc AM  
Power Input to Final: 22 to 25 Watts  
RF Output Power: 10W 144-146 Mc  
AC 240V Operation  
9W 144-146 Mc  
DC 12.8V Operation

Crystal Type: FT-243  
Crystal Frequency: 8-8.222 Mc

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Output Impedance: 50-100 ohms w/Coaxial Connector

**POWER SUPPLY**  
AE Operation: 117/230V 60/50 c/s  
Receive Power Drain: 106 VA  
Transmit Power Drain: 146 VA

**DC Operation:** DC 12.8V (12/14V)  
Receive Power Drain: 90 VA  
Transmit Power Drain: 120 VA

Tubes and Transformers used: 16 Tubes  
1 Nuvistor, 8 Diodes, 4 Power Transformers  
Dimensions: H: 6 1/2"; W: 11 1/2"; D: 12 3/4"

Weight: 22.2 lb

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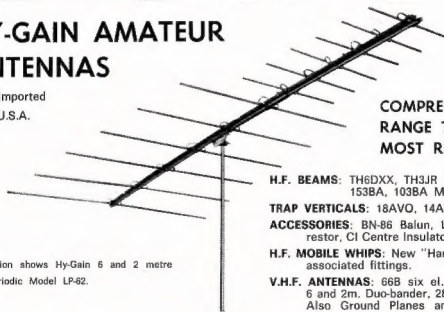


Illustration shows Hy-Gain 6 and 2 metre  
Log Periodic Model LP-62.

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## FEDERAL COMMENT

By JOHN B. BATTRICK, VK3OR, Immediate Past Federal President, W.I.A.

I wrote this "comment" after returning from the 33rd Annual Federal Convention held last month in Canberra. This will be my last comment as I have asked Federal Council to accept my retirement from Executive due to pressure of business and for personal reasons. I announced this fact at the commencement of proceedings at the Convention, which left Federal Council the additional problem of a replacement for the office of Federal President.

However, it did allow for discussion among Federal Councillors and towards the end of the Convention, Federal Council, by unanimous decision, appointed David Wardlaw (VK3ADW) to fill the vacant position on Executive, Michael Owen (VK3KI) to the position of Federal President, and David Rankin (VK3QV) to the position of Federal Vice-President. I was appointed for a further term as the W.I.A. Director I.A.R.U. Region III. Association—for which I am grateful as it will allow me to continue to serve W.I.A. and Amateur Radio in an important area of activity, but without the stress attaching to the office of W.I.A. Federal President.

Personally I am very pleased with the decisions of Federal Council to appoint two such young and experienced men to the positions of President and Vice-President. This is, in any organisation, a rare combination—youth and experience. David VK3QV is well known as a long-standing member of Executive. His activities on v.h.f. bands and 10 metres, his competent management of W.I.A. Federal Activities (contests, etc.), his valuable assistance given to set up the Region III. inaugural congress, his contact with overseas Amateur Societies on a personal basis, his attendance at many Federal Conventions—all bring a valuable background of experience to his office. He will continue his work as Federal Activities officer in his new position.

The new Federal President, Michael VK3KI, is also a well known worker for Amateur Radio and the W.I.A. Over the past six or seven years he has been a tireless and determined officer in both Divisional and Federal matters. I say determined only because there are

times when the pressing of matters clearly aimed at improving the W.I.A. organisation and our hobby has needed a forthright approach to the problems. This has been supplied and such things as the new Handbook, with its liberal operating and licensing provisions, the detailed work on the new Federal Constitution, the development and planning of the W.I.C.E.N. network in VK3, the detailed drafting of the interim constitution for the Region III. I.A.R.U. Association, the active attendance at many Federal Conventions, the recent achievements with regard to v.h.f. repeater/translators, show the results of his energetic and forthright approach.



JOHN B. BATTRICK, VK3OR,  
Immediate Past Federal President, W.I.A.

A very high degree of personal rapport has been established between the officers of P.M.G. Central Office and our new Federal President over recent years. He still finds time to operate his r.t.t.y. equipment and to be active on v.h.f. f.m. nets (he was as a matter of interest, one of the first to operate equipment on 145.854 Mc. f.m., from which has grown the present net frequency system).

I put these points before you to indicate that Federal Council in its unanimous decision to appoint Michael and David to these high positions in our society recognises, no doubt, the value of youth when allied to such a wide and deep experience. Such people are rare and their expertise a "must" in

any organisation. They will be ably supported by Peter Williams (VK3JZ) as Federal Secretary—also a long standing co-worker with Michael and David, and a tireless administrator (or we hope he is tireless, hi). This point I may pick up—we all accept hard work, we all give our time as we can to help the W.I.A.—but stress none of us needs in this busy world of today.

The recent "Federal" Convention in Canberra was one of the most significant for many years. The fact that all the delegates and members of Executive present were housed together in the one centre which also contained the conference room allowed for many free exchanges of views both at the conference table and in the periods between formal sessions. As a result, many differences of opinion were explored, compromise reached, and stress reduced.

These areas in which compromise can be reached, that is, where some solution acceptable to all is possible from an initial position of difference, is one of the easiest areas for Executive to carry out. Easiest because the instructions stem from unanimity. However, many areas in which F.E. is required to execute some direction from Federal Council are less easy because instructions stem from majority decisions. Executive must, by virtue of our society procedures and rules, in these areas, proceed in a manner consistent with the views of the majority, however keeping also in mind the views of a minority. A deeper realisation of the difficulties inherent in this latter activity have resulted from the first convention in our "Federal Capital".

I hope you will all give your new Executive your wholehearted support during its coming year—I believe you have a vigorous and talented Executive with youthful and experienced leaders. As I said before, a rare combination. They have much to do for you (61 motions and motions arising were dealt with at the Canberra Convention between midday Friday and midnight Sunday). I commend them to you and thank them for carrying on from where I unfortunately had to leave off.



# NEW IDEAS ON AMATEUR TELEVISION

## PART TWO

GRAHAME WILSON,\* VK2ZGW/IT

As you have probably realised by now, Amateur Television offers a unique and challenging opportunity for the Amateur to try out his ingenuity, but there is a definite method of lacking Amateur Television so as to avoid as many problems as possible.

Firstly, if possible, you should join an ATV group or contact people involved in ATV so as to gain as much experience as possible. Many Amateurs have had experience in television and can give you a great deal of assistance.

Secondly, Amateur Television is quite different from Amateur Radio and so is the test equipment used. It is most essential that you have access to certain pieces of test equipment or you will be working in the dark—remember, television works on pulses, not on sine waves. Once again, group effort in pooling test equipment is about the best method. The most important piece of test equipment is the c.r.o., followed closely by the multimeter and signal generator.

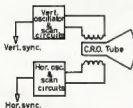


FIG. 1. THE FLYING SPOT SCANNER (Simplified block diagram)

Thirdly, you should plan your projects well ahead of construction, show your circuit diagrams to other ATVers for constructive criticism. Basic individual circuits should be built as prototypes and their performances noted before you build any major projects as this will avoid those nagging faults that always seem to follow a bad design. I will be giving you further hints on design later in the series.

The circuits used in television, or for that matter, any electronic circuitry, are built up of basic circuit functions and if you understand these functions you will not be restricted to one design but may modify it to your own needs. It is, therefore, necessary to get your basic television circuit theory off pat.

Fourthly, do not rush in to ATV and expect results immediately, start slowly and build up your equipment, such that each section is of known reliability and when connected to the "system" you know that it will work. This is a much better approach in the long run.

Throughout this series of articles my approach to the subject will be of more to giving information and ideas rather than describing projects that follow a rather rigid line of circuitry and construction. There are several reasons for this. Firstly, it would mean a great

deal of developmental work on my part to produce designs that everyone can construct without difficulty, and secondly the requirements of different Amateurs will vary greatly according to their needs and the parts they have available.

If you would like to follow a series of articles on construction of ATV equipment try and obtain copies of "A.R." March to November 1958. This series of articles was magnificently developed by E. Cornelius, VK6EC/T, and the equipment described is quite suitable for use today as it was designed around C.C.I.R. standards that the television services comply with. Considering the time the series was written it would probably be safe to say that the articles would class as one of the "classics" of "Amateur Radio," the work put into this series must have been phenomenal. All I can say is if you can get hold of the series, read it!

As this article is the second in the series I will not have time to describe

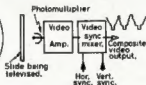


FIG. 2a. GRID MODULATION.

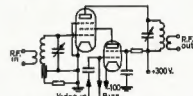


FIG. 2b. SCREEN MODULATION.

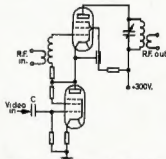


FIG. 2c. SERIES (Cascode) MODULATION

TC - Very large.

Note: These circuits are illustrative only.



the "set up" in the shack fully, but I will endeavour to give you a brief idea of what the actual equipment in the shack consists of.

The ATV station consists of three major sections:

- (1) The camera.
- (2) The modulator and transmitter.
- (3) The converter and receiver.

Taking the last first, the receiving section of an ATV station consists of a receiving device (antenna), a 432 Mc. converter and a television set. The antenna will usually be a Yagi with about 12 to 16 db. gain, or a phased array of similar gain. The converter will vary, depending on gain needed, location and the like. For just reasonable distances, almost any reasonably low-noised converter will do, it can also have a free-running oscillator as stability for television reception is not of paramount importance. The output of the converter can feed into an unused t.v. channel of a standard television set.

The camera can be of two categories:

- (1) Still camera.
- (2) Live camera.

The difference between the two is quite self-explanatory. In the still camera photographs (negatives and

1 Local oscillator of t.v. set should not produce harmonics on 432 Mc. if you select the channel with this in mind.

I will describe the operation of the live camera in my next article.

The next and last section of the ATV station is the transmitter and modulator. In many respects a video transmitter is the same as an audio one, the main difference being the bandwidth of the transmitter. In order to obtain bandwidths in the order of about 5 Mc., a different approach to modulating has to be taken, the use of reactive transformers is out and one has to adopt a completely different method. This is quite easily done by coupling

(Continued on Page 15)

\* 21 Ada Street, Katoomba, N.S.W., 2780.

# A FIELD-DAY TRANSMITTER

T. MITCHELL,\* VK3EZ (Ex VK5TH)

• This article is intended to encourage building for and participating in the National Field Day Contest. The transmitter has been proved in service as reliable communications with Eastern U.S.A., Canada and New Zealand have been successful.

In designing this 15-watt transmitter, my original intention was to build a transceiver. The space now occupied by the power supply and sidetone amplifier was to be used for a two-band transistorised receiver. Terminal TSB-3 was the receiver 12 volt supply. Having bought the EC10 receiver, the inducement to continue the in-built receiver ceased.

Some points of interest are:

means less inter-circuit wiring. No microphone press-to-talk switch is necessary.

## 3. Keying

Screen grid keying is quite effective in this transmitter. In conjunction with crystal control and a regulated h.t. oscillator supply, and noting the very small keyed screen grid current (0.7 mA.), the transmitter output is clean, chirpless and free of key clicks. The disadvantage, of course, is that the

THIS description of a self-contained 40 and 80 metre transmitter is intended to encourage some of our younger Amateurs to take an interest in portable operations and, in particular, to participate in Field Day Contests. As VK5TH/P and VK3EZ/P, I have enjoyed several Field Day Contests, starting with unsophisticated gear, but year by year improving my gear.

In 1968 I used the transmitter described here in conjunction with a Super Pro receiver using dry batteries, for high tension. For the 1969 Contest I was in the field using this transmitter in conjunction with an Eddystone EC10 (transistorised) communications receiver. Voltage for the transmitter was obtained from the automobile cigarette lighter via a special plug which is available for about 60 cents.

Whatever the rig, crude or sophisticated, the John Moyle Memorial National Field Day Contest is, for me, the most important day in the Amateur Calendar. There is no more enjoyable experience than operating under field conditions, using equipment built, modified or improvised for the occasion.

\* 91 Roslyn Street, Burwood, Vic., 3125.



## 1. Portability and Cost

The cabinet, sidetone speaker, C14, C15, TR/1 and several other components were purchased quite cheaply from city disposal houses.

## 2. Single Switch Operation

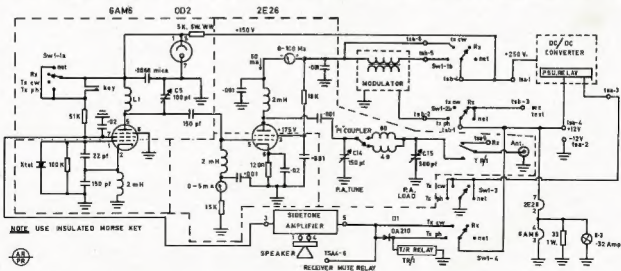
See circuit diagram and note the separate meters for monitoring power amplifier grid and plate current. The space taken by a small meter is no larger than necessary to accommodate a switch, and having separate meters



Morse key is at +150 volts potential. However, insulated keys are available at disposals houses at about 50 cents.

## 4. C.W. Monitor (Sidetone)

As a keen c.w. operator, I insist on a keying monitor. I do not like using a transistorised receiver for monitoring signals. It is far better to switch off the receiver whilst transmitting. Most



circuits previously published have used r.f. power as a voltage source for the monitor. However, I consider that with the low r.f. power available, adjustment of coupling could be tricky.

My circuit uses the oscillator keyed screen supply as a voltage source for the multivibrator transistors in the sidetone unit. Although this does not prove that the transmitter is actually radiating, it provides a faithful reproduction of the operator's keying characteristics. The 12-volt supply is used for the sidetone output circuit: Diode D1 prevents sidetone operation when switched to "transmit phone".

#### 5. Stability

With crystal control, regulated high tension supply for the oscillator, and proper screening, stability is as good as many fixed station transmitters. The broken lines on the circuit diagram in conjunction with the photographs show clearly the screening. Note that the oscillator tube is mounted above the chassis to provide further isolation between oscillator plate and grid circuits.

#### 6. Minimum Operating Controls

Careful consideration was given to this aspect and the circuitry provides single switch operation for four functions. The oscillator plate circuit tuning capacitor C5 tunes 40 metres at near minimum and 80 metres at near maximum. 80 or 40 metre crystals can be used for 40 metre operation. The EF91 (6AM6) is a well screened tube and operation on the fundamental crystal frequency is satisfactory.

#### 7. Phone Operation

The modulator is based on an article entitled "Modulator Design with OC26 Transistors" in Mullard "Outlook" for May-June 1960, modified in the March-April 1962 edition.

#### 8. Coil Data

Oscillator plate coil L1—

25 turns of 30 gauge enamelled wire on a 1" diameter former, turns removed to tune 80 and 40 metres at near extremities of C5.

80 metre final tank coil—

21 turns of 24 gauge wire on a 1½" diameter former, double spaced.

40 metre final tank coil—

13 turns of 24 gauge wire on the same 1½" diameter former, double spaced.

### GETTING LAST BIT OF POWER FROM A.W.A. MR3 CARPHONE

If you measure the voltage drop across the metering resistor in the p.a. anode of your MR3 (and I suppose other units also) you will find a drop of about 8 volts across this 100 ohm resistor which means that about ¼ watt is being dissipated as heat.

So to make this ¼ watt of power work, short out this resistor by applying a short to your metering plug and leave it plugged permanently into the p.a. anode metering socket.

—Max Hegner, VK3ZQY.

### 1969 U.S.S.R. DX CONTEST

#### RULES FOR C.W. SECTION

Date, 09 GMT, May 3, to 21 GMT, May 4. Object: To work as many stations as possible both in the U.S.S.R. and in other countries.

Exchange RST plus three-figure serial number starting from 001.

Scoring: Each contact is worth 3 points. Contacts with the same country count 0 points, but can be counted as a multiplier. The multiplier will be equal to the total number of countries worked, regardless of the band. Final score equals sum of QSO points from all bands multiplied by number of countries worked.

Scoring will be for a maximum of 13 hours. Submit the complete log, but mark the 13-hour period you wish to be entered for and score only this period. Mail the log within 15 days to C.R.C., P.O. Box 88, Moscow D-302, U.S.S.R.

### YL INTERNATIONAL S.S.B.'ERS 1969 QSO PARTY

Beginning 0900 GMT, 14th May, through 2400 GMT, 28th May, 1969, both phone and c.w. S.S.b'ers have many c.w. only members so all bands and modes will be used and a new c.w. only plaque will be awarded for world high c.w. score. The QSO Party is in three categories, non members are welcome as all Radio Amateur awards are supported.

Categories: 1—DX/WK teams, 2—YL/OM teams, 3—single operator.

Exchange: RST, s.b.b. number, state, country, or VE/VO province, partner's call. If no partner, leave blank. If non-member, send "no number". Sending name is optional.

Suggested Frequencies: Plus or minus 5, 10, 15 Kc. as QRM dictates. Phone—3875, 7373, 14332, 21373. DX may transmit on 8772, 7090, 1423. C.w.—3055, 7065, 14070, 21670, 35070.

DX/WK Teams: Each team consists of a DX and a WK station. The team score is the sum of both partners' scores and determined when both logs are received.

YL/OM teams: Each team consists of one YL member and one OM member who are related, i.e. husband and wife, father-daughter, mother-son, brother-sister. Operation must be from same QTH using same rig and his or her own call.

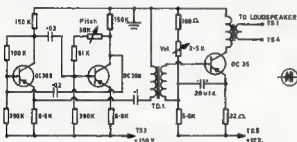
Single operator category: Non members will be entered in this category.

Logs: Must show GMT date, GMT time, RST sent and received; his state, VE/VO province, or country; s.b.b'ers number, partner's call, bands and modes of operation. Logs must show six continuous hours of rest in each 24-hour operation and each team member must show at least six hours of operation during the party.

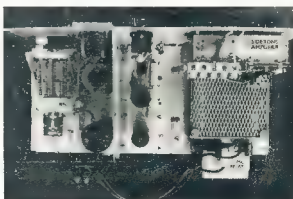
To qualify for the single operator world-high combined score trophy, logs must show at least six hours of operation in each mode, c.w. and s.s.b.

Conditions: The same stations may be contacted for additional contact points on different bands and modes, but NOT for additional multipliers. All operations will be with one transmitter and receiver or one transceiver and receiver only. Any difficulty not covered by these QSO Party rules will be decided by the YL Int'l SSB'ers Executive Council for maximum pleasure to all participants.

Logs go to Woody Bennett, W0GNY, 8330 E. 21st Street, Kansas City, Missouri, 64129, U.S.A.



SIDETONE OSCILLATOR AND AMPLIFIER



# PROJECT—SOLID STATE TRANSCEIVER

## PART SEVEN

H. L. HEPBURN,\* VK3AFQ, and K. C. NISBET,† VK3AKK

**T**HIS month's article will deal with the cabinet for the complete transceiver and give an abridged lining up method for the receiver. It was originally intended to describe the transmitter p.a. in this article but—to judge from correspondence—the majority of participants preferred to have cabinet and receiver line-up information first. The p.a. article will thus appear next month.

### THE CABINET

An exploded view of the cabinet is given in Fig. 21, from which it can be seen that it consists basically of a "U" shaped chassis tray to which back and front panels are attached. Unperforated top and bottom covers, slightly wider than the depth of the cabinet, follow the rounded corners of the panels and attach to the vertical sides of the central tray.

Fig. 18 gives the front panel layout, the central item being the Eddystone Type 898 dial, with all other controls

steel. The top and bottom covers are of 20 gauge steel. All parts are fully drilled, cadmium plated, passivated and the exterior parts sprayed.

Those who wish to make a smaller cabinet to suit their own end requirements will undoubtedly do so. It is to be hoped they may get a few ideas from these notes.

As an example of the degree of "compression" that can be achieved, it is worth mentioning that one of the authors (VK3AKK), using standard project boards and a smaller (but less satisfactory) dial, has made a three-band transceiver that fits into the glove box of his Kombi station wagon.

### RECEIVER ALIGNMENT

This part of the article will make frequent reference to coils, trimmers, etc., and the reader is advised to have before him the six previous articles in this series, i.e. the November and December 1968, and the January, February, March and April issues of "A.R."

The reference numbers (of coils especially) are those used in the previous articles.

It is assumed that a good signal generator is available to do the lining up of the receiver. By "good" is meant a s.g. with a reliable attenuator. It is not recommended that use be made of the cheaper types whose leakage alone may be in excess of tens of microvolts.

With one exception, Figs. 14 and 15 in the March 1969 issue of "A.R." gave the d.c. and signal interconnections for the modules making up the receiver part of the project. The exception was the filter pre-amplifier. When on receive this module takes its h.t. feed from the a.g.c. line through a diode, and should be so connected in carrying out the commissioning procedure.

Rather than put all modules into their final case or cabinet, it is strongly recommended that they first be mounted on to a metal plate (aluminium for preference) about 18" and 12", using the layout given in Fig. 19. The voltage regulator board, the 0-1 mA. "S" meter and the b.f.o./prod. det. box can be wired "outboard". This procedure is recommended in order to make simple the removal and checking of any individual board should this be necessary.

It is also suggested that the various switches are not wired into circuit and that connections to the desired sections of the circuit be made using temporary leads. In this way it is possible to commission one band at a time and be sure it is operational before going through the time consuming process of wiring up, say, the bandswitch, and then perhaps having to disconnect when a problem turns up somewhere.

These general remarks apply not only to the bandswitch but to functional

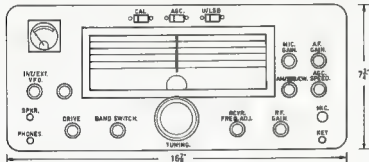


FIG. 18. FRONT PANEL LAYOUT

and inlet sockets being symmetrically grouped round it.

Not shown is the rear panel which carries signal and power connections for external crystal or v.f.o. control, the antenna input socket, the power input socket and provision for future vox controls.

Figs. 19 and 20 give the layout of the various printed circuit boards and die cast boxes on respectively the top and under sides of the main chassis tray.

No attempt has been made to miniaturise the case, it being felt more important that there should be plenty of working space for both the initial interwiring and subsequent adjustment procedures. A bonus to this line of reasoning is that plenty of room is available for the future addition of extra bands, converters, calibrators, vox, two-tone test oscillators and other similar accessories.

The cabinet made for the project (and mentioned later under "Availability") has a chassis tray made of 16 gauge steel, a back panel of the same gauge and a front panel of 14 gauge

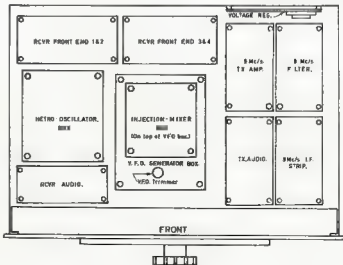


FIG. 19. ABOVE CHASSIS VIEW.

\* 4 Elizabeth Street, East Brighton, Vic., 3187.  
† 25 Thames Avenue, Springvale, Vic., 3171.

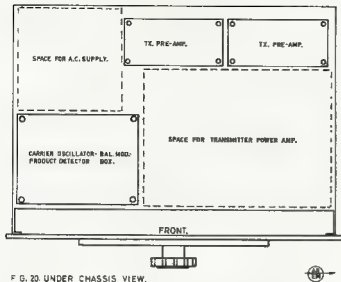


FIG. 20. UNDER CHASSIS VIEW.

switching such as a.g.c. speed, upper and lower sideband, a.m./c.w./s.s.b., etc.

To further simplify commissioning, it is recommended that no relays be used but that direct connections be made to the points on the v.r. board indicated by Fig. 14.

The general connection procedure is as follows.

(1) Receiver audio module. Take h.t. from the unregulated supply. Take input from the slider of a 50K potentiometer wired across the spare terminals of the uA718c i.c. (Fig. 14). The potentiometer can be mounted on a temporary bracket near the front of the base board.

(2) Receiver i.f. strip. Take h.t. from the unswitched regulated line on the v.r. board. Do not wire in the 320 uF, and 1,000 uF, a.g.c. timing capacitors at this time. Make the necessary connections between the a.m. (not limited) output pin, the 50K audio level control and the spare uA718c pins (Fig. 14 again). Do not wire in the a.m.-limited circuit.

(3) Connect the a.g.c. outlet on the i.f. board to the a.g.c. inlet on the v.r. board. Wire the "S" meter to the v.r. board. Set the 15K "S" meter zero and the 22K "S" meter f.s.d. trimpots on the v.r. board to half rotation. Set the 22K a.g.c. threshold trimpot on the i.f. board to maximum resistance to render the a.g.c. action inoperative (see Jan. '69 "A.R.").

(4) Temporarily connect a 100 ohm resistor across the i.f. board input terminals to act as a "load".

(5) From a signal generator apply 100 microvolts or so of modulated 9 Mc. to the input of the strip. Adjust the cores of T1 and T2 for maximum audio output, backing off the generator as resonance is reached. When on resonance, connect a 0-15 voltmeter between the a.g.c. line and earth. Adjust the 15K trimpot on the v.r. board to zero the "S" meter. Set the signal generator to 20 microvolts output and

then adjust the 22K a.g.c. trimpot on the i.f. board until the voltage indicated on the 0-15 voltmeter just starts to drop. At this point the "S" meter should just start to rise.

The back end of the receiver is now nearly on frequency. Exact frequency will be established in the next step.

(6) Remove the 100 ohm resistor from the input to the i.f. board and wire in first, the filter board and then the filter preamplifier board. Use thin co-axial cable for signal connections, earthing each end of the shield to the earth pins provided on the various boards. It may be necessary to take the earth mat on the i.f. strip directly to the ground plate by means of lugs soldered to the earth mat at each corner and use the mounting bolts to complete the earth return. The h.t. feed for the filter board comes from the main regulated supply. The h.t. feed for the preamplifier comes from the a.g.c. line.

Apply a 100 microvolt modulated signal to the preamp. input. Swing the

generator slowly around 9 Mc. until a signal is heard going through the pass band of the filter. Centre the signal in the pass band and adjust the cores of T3 and L23 (Fig. 10) to resonance. Repeat the cores of T1 and T2 on the i.f. board to resonance. Note that these adjustments, and those that follow, can be done using the "S" meter as a tuning indicator.

The back end of the receiver is now operative in the "a.m.-not limited" mode.

#### (7) The VFO.

To adjust the frequency of the v.f.o. to the correct range, the following procedure is recommended.

Set the main tuning capacitor to full capacity and the 3/30 pF. trimmer to half capacity. Apply power to the v.f.o. from the regulated line. Listen for the v.f.o. note between 8 and 10 Mc. on a general coverage receiver. Note this frequency. Open the tuning condenser to minimum capacity and again search for and note the frequency of the v.f.o. signal.

As the coil supplied in the kits has excess turns on it, the v.f.o. range in the unmodified condition will probably be less than 0.5 Mc. and will have a lower range frequency below 10 Mc.

Temporarily short the top turn of the v.f.o. air-wound coil and repeat the "range" measurement. The lower v.f.o. frequency will now have risen from, say, 8.5 Mc., or thereabouts, to perhaps 9.0 Mc. or thereabouts. Again short a turn and repeat the "range" measurements. Repeat this procedure until the lower v.f.o. frequency is close to 10 Mc. and can be brought exactly on to 10 Mc. by adjustment of the 3/30 pF. trimmer. Remove the shorted turns from the coil and check again that the lower v.f.o. frequency can be set to 10 Mc.

(8) The 48 Mc. oscillator is now checked. Set the slugs of L15 and L13 (Fig. 6) to half way. Set the slug of L14 almost out. Screw L14 through its complete range and note where the drain current (as measured with a volt meter across the 1.0K decoupler, or with a 0-20 m.a. meter in series with it) drops by about 0.5 mA. (indicating oscillation) and then rises again (in-

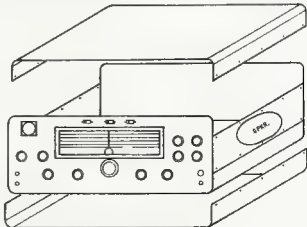


FIG. 21. EXPLODED VIEW OF CABINET.

2. Connect up the v.f.o./generator, the injection mixer and the appropriate heterodyne oscillator as shown in Figs. 14 and 15. The output of the injection mixer is coupled to the oscillator input of the front end board in use. Check that the 1,000 pF. capacitor across the output of the front end board is in place. (Refer to Dec. 1966 "A.R.") Connect the front end board output to the filter preamplifier, again using co-ax. H.T. feed for the front end board is taken from the a.s.c. line.

This completes the primary commissioning procedure.

The final line-up consists simply of tweaking the various slugs to give maximum output. The cores of L3, L5 and L7 on the front end boards are adjusted to give maximum output at about 25% of the way above the lower band edge, while L2, L4 and L8 are adjusted at say 25% below the upper frequency end of the band in use.

(c) Accessories kit. This contains all the necessary plugs, sockets, knobs, switches, etc., except the bandswitch. The standard kit—including "S" meter and two 12 volt DPCO gold plated relays costs \$32.50 exclusive of postage. Relays and "S" meter are obtainable separately if required.



# THE DJ4VM MULTIBAND QUAD\*

## Aerial System with Two Driven Elements and Centre Fed Single Quad Loop per Element

by PROF. DR. PHIL WERNER BOLDT,† DJ4VM

(Abstract Translation by H. F. RUCKERT,‡ VK2AOU, ex-DLIEZ)

THE advantages of a monoband cubical quad aerial, to give good DX results in spite of low installation height ( $<1\lambda$ ) and its high front to back (F/B) ratio, are well known. Not solved is the problem of achieving these features if a conventional multiband quad with two or three wire loops per element is employed. At 28 Mc. only 25% of the 14 Mc. element area is being used. Field interaction occurs and the phase symmetry upper and lower quad half is disturbed. Recent publications\* show that certain solutions to this problem are being tried.

The author developed a new quad, working at first at 145 Mc., and since autumn 1967 on the DX bands (German patent applied).

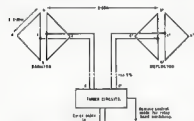


Fig. 1 Schematic diagram of 20m multi-band quad with symmetrical driven

### DESIGN FEATURES

Each quad element consists of two triangles and the hypotenuses are part of the feed line to drive the upper and lower element half exactly symmetrically (Fig. 1). The four sides of the quad (short sides of triangle) are 5 m. (16 ft. 3 1/2 in.) to 6.4 m. (21 ft.) long for 14, 21 and 28 Mc. operation. The spacing between the radiator and the reflector may be 2.6 m. (8 ft. 6 in.). The reflector quad, including its tuned feeder, should have 5% more wire length or the tuning coil may be increased instead.

The feeder lines are made long enough so that the aerial tuners (one for each band, and such a set of three for each element, e.g. six tuners for a triband two element quad) can be easily reached from below the quad for tuning of the aerial at the final and high position. The feeder should not be a multiple of a quarter wave on any band, to avoid tuner adjustment difficulties. A single co-axial cable goes from the transmitter to the tuning box containing the switching relays and the tuned circuits of the aerial tuners.



Fig. 2 Symmetrical distribution of an ungrounded feed line quad (145 Mc. with 100 pF. capacity) (German patent applied for 1967)

Aerial relays may be used to switch the co-axial feeder to the desired tuner parallel tuned circuit, and to connect the parallel wire feeders of the two quad elements to the appropriate tuner pair. The relays may be remotely operated from the shack.

### ADVANTAGES

This quad has less wind resistance than a conventional 2 x 3 wire loop quad. The wire length is not critical, and the four outer quad element sides may have 2.4 times the length of the shortest wavelength transmitted. Loops of 4 x 5 m. (mini quad) or over 4 x 6.5 m. (extended quad) bring reduced efficiency and additional radiation loops respectively. Separate tuning of each element at the three main operating frequencies assures low SWR and compromise free conditions.

An extremely high front to back ratio is maintained in spite of the same spacing for all three frequencies (F/B ratio is only 15 db. in the case of some other multiband quads). There is only a small frequency difference (30 Kc. at 21.3 Mc.) between tuning for the best forward gain and maximum F/B ratio. The usually necessary difficulty-to-perform tuning near the top of the mast is avoided. Retuning of the elements at full operating height, after the initial tuning has been carried out near the ground, is no problem.

The accurate symmetrical tuning and feeding of the element halves guarantees clean phase conditions, causing better directivity (narrow beam of radiation), therefore more gain and extremely small backward radiation, resulting in less QRM, low vertical angle radiation (important for DX). (See Figs. 2 and 3). These advantages may be worth the effort to construct the more complex feeder-tuning system, if the operator wants no compromise but perfection.



Fig. 3 Symmetrical current in upper and lower quad element systems (a) 145 Mc. with 100 pF. (b) 145 Mc. with 100 pF. (c) 145 Mc. with 100 pF. (German patent applied for 1967)

### CONSTRUCTION DETAILS

The boom carries at each end a cross made of fibre glass or weather-treated bamboo rods. The vertical member of the cross holds the tuned feeder part of the quad element (hypotenuses of triangle) in form of a 800 ohm (or so) feed line. The two dipole wires are strung between the cross ends to form the quad loop. (Fig. 5.)

The aerial tuners have approximately the following dimensions (capacitors being 50 pF. maximum):

### COIL DATA

- 20 mx band: 10 turns, 4 cm. (1.57 inch) diameter.
- 15 mx band: 8 turns, 3.5 cm. (1.38 inch) diameter.
- 10 mx band: 8 turns, 3 cm. (1.18 inch) diameter.

The co-axial (50 ohm) feeder line may be link coupled (via 1 to 2 turns) or connected directly 1 to 2 turns away from the earthed centre of the tuner

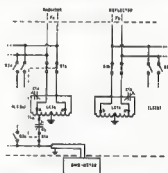


Fig. 4 Feeder and midline signal for two element system (German patent applied for 1967)

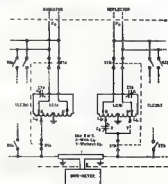


Fig. 5 With driven reflector, otherwise like Fig. 4

\* Abstract Translation from "DL-QTC", No. 9.

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coil. It is recommended to add the trimmer Ck to be able to tune out the coupling reactance in order to obtain a low SWR. It is advisable to check the tuning of C1a and C1b with a calibrated GDO, with the quad connected, but the co-axial line disconnected (at first).

If the co-axial cable connecting points have been correctly chosen (matched condition), only a slight retuning of C1a and C1b is needed after the cable has been attached.

The reflector tuning is carried out by adjusting C1b (C1a may be rechecked finally), and a testing dipole

## RESULTS

Absolute gain values are not quoted because a suitable test dipole (as high as the quad, at the right distance) was not available. The radiation pattern (Fig. 7) was obtained with the help of DJ5RH operating a high quality measuring receiver (Siemens, Type B83 600-A80) at a six miles (10 km.) distant location. The often quoted S meter readings of uncalibrated receivers are not accurate enough and often only wishful thinking.

The horizontal width of the radiated beam at the half power level amounts here to only 50° at 20 mx (75° with

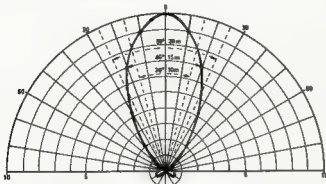


FIG. 7. Radiation pattern for DJ4VM quad for 20m, 15m (solid line) & 10m with driven reflector.

is used a few wavelengths behind the reflector and placed as high as the quad. The line between the test dipole (receiving diode) and the indicating instrument (near quad tuning box) must be r.f.-free and shielded to avoid misleading results.

Fig. 5 and Fig. 8 show a version with parasitic and one with driven reflector respectively.

The second case is shown in Fig. 6.

In order to feed the radiator and reflector with r.f. of opposing phase, the co-axial line is split near the tuning units, and the leads from the switches (relays) S1a go to the left half of the coil L1a and S1b to the right hand side of L1b (case "Y"). The connecting points at the coils are slightly moved outwards (120 ohm) to achieve matching.

If a further improvement in the SWR is found to be necessary, the trimmer Ck (case "X") may be added (connection "Y" removed) and Ck is attached to the left side of L1b, e.g. left of the earthed centre tap. Ck and C1b are alternatively adjusted for SWR minimum.

The coil tap positions for the feeder leads from S1a and S1b (via Ck) are:—  
20 mx band: 1.5 to 3 turns from the earthed centre.

15 mx band: 1 to 2 turns from the earthed centre.

10 mx band: 0.5 to 1.5 turns from the earthed centre.

The backward radiation minimum is very sharp. A SWR of less than 1:1.5 should always be obtainable at the tuning frequencies.

ceived signal happens to come in (propagation, position and type of the other operator's aerial).

Measurements over the 21 to 21.45 Mc. band (Fig. 8) show some interesting features, which are also true for many other beams. One finds a maximum forward gain at 21.34 Mc. and a substantial drop at 21 Mc., whilst the SWR is within 1:1.2 and 1:1.4 over the entire band with the minimum near 21.2 Mc. (not 21.34 Mc.). The F/B ratio maximum is found at 21.3 Mc. (30 Kc. below gain maximum). It is clearly demonstrated that a high gain aerial is selective and has to be tuned to the mainly preferred Amateur band section to utilise its ability to advantage.

It may be mentioned that the described quad principle can be adapted to other quad forms like triangle hypotenuses held horizontal, circular elements, Swiss (HB9CV) quad, etc., At v.h.f. it was noticed that a 50% increase of the loop circumference caused a marked gain increase. It may be possible to replace the three separate tuning units per element by one multiband tuned circuit (a la VK2AOU).

The author expresses his sincere thanks to Otn Karl-Heinz Krah, DJ5RH, for the help during the aerial construction work and the assistance given during the many measuring runs.

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11. Vgl. W. L. Orr, WSAI, Beam Antenna Handbook, S. 31 ff.
12. W. L. Orr, WSAI, Beam Antenna Handbook, S. 75 ff.
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conventional full size quad values), 40° at 15 mx, 30° at 10 mx, and the half voltage beam width is 75° (90° with conventional full size quad values).

The narrow 20 mx beam is due to the quads' symmetry and the feeding of both elements, and the still narrower beam at 15 mx and 10 mx is the result of the extended elements (dipoles) used here.

The front to back ratio was on all the bands better than 40 db. (5 to 25 db. in some cases of multiband quads) for the version with driven reflector, and 25 db. with parasitic reflector. This ratio depends also on the (not measured) vertical radiation pattern of the aerial, e.g. the vertical angle the re-

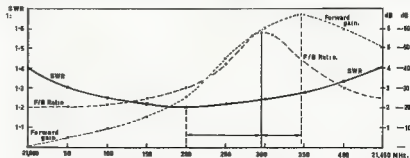


FIG. 8. F/B Ratio and forward gain variation of multiband quad (driven reflector) over 21 MHz band.



# "IT"

A. J. C. THOMPSON,\* VK4AT

We Radio Amateurs would not consider ourselves genuine unless we applied a little electronic touch to the solving of quite commonplace problems. We must be a sore trial to our more practical minded XYLA. This difference in our respective mental attitudes was startlingly illustrated quite recently on this particular radio active farm.

We have here a problem pup, much beloved until quite recently. His fall from grace was due to his base betrayal by an indignant hen. He was unlucky enough to get "copped" while still urging her to greater speed in the production of his breakfast egg. He repented on the chain with a sore tail, but this sad experience only endowed him with the knowledge that caution and silence were essential in all exploits hen-wise.

My own XYLA, after much experimenting, has developed quite a standard technique. At the first sound of a triumphant hen she "hushes" me in elegant sign-language while she takes a couple of audio bearings to pin point the exact position of the chook. Then she rushes out casting one suspicious eye on our egg-eating pup and the other on a crow that lurks in the big fig-tree waiting for his breakfast too.

If no egg is forthcoming, then a very strained situation exists. Both the crow and the pup know where the egg is but she doesn't. The pup has the wrong technique under these circumstances. Anticipating an examination of his molars, he slinks off to his kennel, followed later by a wrathful XYLA who ties him up. He gets in a couple of conciliatory licks on her face while her hands are so engaged, but it doesn't do him much good (or her either).

It was evident then that the situation badly needed that delicate electronic touch previously mentioned, that is so exclusive to such as us. Some trusting soul had providentially just given me an electric fence to fix. It already had quite a good "kick" but my junk-box produced the goods to make it even better. I tried it out on an old chook that always licked out the chooks feed tin and it worked fine. A china egg with a groove in it to take the wire, some fresh egg yolk for its aroma and for disguise, some insulating material and some well wetted ground were all that were needed extra.

Along comes the pup but he stalks past it as he remembered past tribulation over public displays with an egg as exhibit A. He sat down and scratched off a few imaginary fleas as he took stock of the situation, but, as no excitement had erupted from the house, he confidently returned. Cautiously he approached it, keeping a wary eye on the house. A quick removal to a more remote spot was standard practice, but the beautiful aroma of egg yolk that assailed his nostrils made him decide to give it just one delectable lick first. He was astonished! He didn't know if he let go of it or "It" let go of him,

but he was first into his kennel and, although tightly jammed into the corner, it didn't take him long to be sure that "It" was not now with him too. He relaxed when he realised that he was temporarily safe. Then he gained enough confidence to even poke a little black nose and a suspicious eye out from his box. Re-assured, he ventured to give a few ferocious barks in the general direction of his enemy.

All was quiet. He ventured out, then hurried back (just in case . . .). He decided then that it had all been just one big mistake, so, out he came with his tail held high and jauntily strolled around looking for something to register a victory over, just to restore his shattered morale a bit. A fitting subject was right to hand in the outward garb of the family cat that he was currently feuding with. He cautiously sneaked up on her then "pounced". Puss, highly bred, and a magnificent feline, thus suddenly assaulted, fled up the electric light pole, but, on seeing the familiar pup as the cause of her fright, she descended inelegantly and stalked home, outraged dignity depicted in fluffed-out fur and quivering tail. She paused long enough to swipe him "fore and aft" when he enthusiastically tried to "tree" her for the second time. Pup ignored the scratches on his rear end

to rub his lacerated nose through the long grass, even though it made him sneeze.

This brought him back to the vicinity of the egg. He was dismayed to see that a broody hen had beaten him to it, and, with happy clucky noises was just settling on it. From past experience he knew that clucky hens were hard to shift. They stuffed up their feathers with queer noises then pecked him on the nose. This one fortunately acted quite differently. She rose suddenly with much melody, exposing his precious egg, so he nicked in quickly and got it right from under her nose.

He wished he hadn't. "It" had got him again for sure, but fortunately let go of him while he was still in the air on the return journey. With his superior speed, he was again able to reach the safety of his own kennel. Temporarily safe, he then decided to stay put and just brood on it. The hen lives that snuggly brood on the grass where the cows with calves kick playful puppies on the nose then roll them in the dirt and bellow in their ears. Now "It" had got his breakfast egg and bitten him twice. But he cheered up when he saw a silly hen approaching intent on swiping one of his discarded crusts. He hunched up ready to pounce. Now this was going to be real fun.

## AMATEUR T.V.

(Continued from Page 7)

directly into the valve that is being modulated. A few basic circuits may give you the general idea.

Finally, before I close this article for this month, I would like to summarise what I have said.

Television, being a logical development of radio, should interest you Amateurs immensely, it should be a challenge for Amateur Radio. Seeing that some of our fellow Amateurs are not only capable of transmitting television signals but are capable of transmitting colour, the moment the P.M.G. gives Amateurs the go-ahead, don't you think that Amateurs could do a little better than they have up to date? It is up to you, prove the cynics who say "ATV is too hard to handle" wrong.

Even if you cannot become actively involved in video you can at least give a great deal of support to those who are by at least taking an interest. You can show this by at least receiving some of these chaps and giving them a signal report. If you would like any specific information about any facet of ATV at all please feel free to contact the ATV group in Sydney or contact me by letter at my address, which is:

Grahame L. Wilson,  
29 Goodlands Avenue,  
Thornleigh, N.S.W., 2120.

If you wish you also may phone me at the above address, the phone number being 84-5475 after 6 p.m. I hope you have enjoyed reading this article. I certainly enjoyed writing it. If you have liked it or you would like any particular item discussed, write to me personally or the Editor of "Amateur Radio."

In the next part I will be discussing cameras and the "systems" they employ with the theory behind it.

## 1969 VK4 SOUTH SEA ISLAND CONVENTION

This year the State Convention will be held at Bribie Island on the weekend of 7th and 8th June. Mark your calendar now.

Council will give final details. Also VK4WI will have up to date news.

The Convention will have as its main interest a Saturday evening function along the lines of an Hawaiian night—casual dress, help yourself to dishes, music, laughing, talking—good fun consisting of a buffet meal followed by a full evening's entertainment which should cater for all. We hope to make this function a most memorable occasion and its success will be ensured by your attendance. It will not be a problem for many to return home if not staying that evening. Bette in on Saturday morning, visit place of interest, set up shop, etc.

Saturday afternoon will be set aside for technical sessions when it is proposed to have experts deal with printed circuits, interference problems, modern circuitry, r.f. equipment, etc., etc., with displays and opportunities for queries. Technical literature will be available. Of course, those who wish may surf, play bowls, swim, etc.

Sunday morning, VK4WI will be operating and N.I. and V.H.F. contests, together with displays, will be the order. Early afternoon is the time for a general meeting followed by presentation of trophies and the auction. Accommodation will be to suit you and your pocket—camping, stationary caravans, motels, flats, luxury hotels. Men's single accommodation will also be provided. For bookings for any of these, contact Ross Cutler, Clarendon St., Bribie Island; phone 52-1070. Children will be catered for with competitions, organised games and entertainment.

Our planning will be simplified if we know you may come. Get a message through to us. Of course we must know who will be along on Saturday night for the dinner and fun.



\* Skyrings Creek, Pomona, Qld., 4668.

## VK-ZL-OCEANIA DX CONTEST 1968 RESULTS

## AUSTRALIA AND NEW ZEALAND

C.w. Section						VN
Call Sign	80	40	30	15	30	Total
VK2APG		3360	6555	5715	3230	17860
VK2GVR		2300	5550	3020	2190	13260
VK3GVN	745	2030	3590	1080	2110	8260
VK3QL	345	1365	2480	775	785	5845
VK3KQ			5065	—	—	5065
VK3BRC		2325	—	—	—	2325
VK3AND		1690	—	—	—	1690
VK3QK		2630	6485	3120	1075	13350
VK3AXK				8185		8185
VK3YD			5340			5340
VK3ARX			4833			4833
VK3APN	1085	3305				4390
VK3QI			4020			4020
VK3ABA				3480		3480
VK3B						2400
VK3ABR	565	2635				3200
VK3BJ			1370	1085		2455
VK3GVV					1790	1790
VK3AFH				1390		1390
VK4VX			3210	5685	2115	11210
VK4KJ				7745		7745
VK4WO					5290	5290
VK4QW				550		550
VK5FDM			2735	8035	745	8615
VK5FH				6725		6725
VK5BS				765		765
VK5KO check						
VK6UT			8615	2220		10835
VK6V			5050			5050
VK7KQ	840	1505	3445	1000		8890
VK7HA				1885		1885
				1465		1465

ZLIAMU	---	1265	7806	6276	6810	22695	A-B-Z
ZLIDV	110	1980	6070	5080	2490	15650	---
ZLIDV	---	335	3210	2240	2430	5235	10-Z
ZLIDS	---	---	---	---	---	5485	---
ZLIDZ	---	---	1205	---	2195	3400	---
ZLIDBN	---	---	1580	---	---	1580	15-Z
ZLIDANX	---	1816	9445	2275	73	18660	---
ZLIDZ	---	1385	4860	5665	2130	15840	---
ZLIDZ	---	---	2825	---	---	---	---
ZLISQ	---	2740	8060	2420	---	16220	20-Z
ZLISQ	---	---	---	3020	3020	---	---
ZLISQ	1830	---	6180	6140	---	---	---

### Phone Section

Call Sign	80	40	20	15	10	Total	80	40	20	15	Total
VK1GD	—	270	9995	5075	4375	22315	—	—	—	—	—
VK1GM	—	2240	2623	6340	5685	20488	—	—	—	—	—
VK2APK	—	1590	8425	4830	4855	18690	—	—	—	—	—
VK2ARU	—	—	2323	2340	1825	6488	—	—	—	—	—
VK2BUX	—	—	—	—	—	4185	—	—	—	—	—
VK2GATZ	—	—	3075	470	—	3545	—	—	—	—	—
VK2AKV	—	—	—	1415	735	2150	—	—	—	—	—
VK2AND	—	—	1135	545	770	1850	W1EV	—	—	—	—
VK2BQ	—	—	1075	5685	2800	7440	W1DY	—	—	—	—
VK3QK	400	3893	3130	2745	10170	71470	W1AX	—	—	—	—
VK3VK	—	—	7289	805	1095	9110	W1EN	—	—	—	—
VK3WU	—	—	5555	—	—	5555	W1WY	—	—	—	—
VK3ARX	—	—	5500	—	—	6600	W1SWX	—	—	—	—
VK3SM	—	—	—	4430	—	4430	W1LW	—	—	—	—
VK3MJ	—	—	—	2075	—	2075	W1VZ	—	—	—	—
VK3AB	—	—	—	2070	—	2070	W1BX	—	—	—	—
VK3QV	—	—	—	—	3005	3005	W2AB	—	—	—	—
VK4LT	—	7290	1675	3875	3290	16060	W2U	—	—	—	—
VK4SD	—	938	—	—	—	938	W2D	—	—	—	—
VK4VX	—	—	—	—	7685	7685	W3PJ	—	—	—	—
VK4SF	—	5870	—	—	5070	740W	—	—	—	—	—
VK4LZ	—	4770	630	—	4280	14400	W4AD	—	—	—	—
VK4RF	—	6275	—	—	—	6275	W4BY	—	—	—	—
VK4DO	—	3515	—	—	3810	7485	W4KMS	—	—	—	—
VK4PI	—	—	8550	—	2650	14400	W4VT	—	—	—	—
VK4QW	—	1070	—	—	—	1070	W4RCS	—	—	—	—
VK5FO	—	6490	4880	4525	15895	—	W5BK	—	—	—	—
VK5WP	—	1730	4355	4440	10005	—	—	—	—	—	—
VK6FM	—	5615	—	—	2780	6400	—	—	—	—	—
VK6UT	—	9445	3730	—	—	13180	J1ADN	—	—	—	—
VK7KY	480	9480	4320	3300	17610	—	J1JEG	—	—	—	—
VK8CM	—	2230	2440	910	5705	—	J1GEG	—	—	—	—
VK8EL	—	630	130	55	865	—	J1JES	—	—	—	—
VK8KS check	—	—	—	—	—	—	J1AYC	—	—	—	—
J1ASV	—	—	—	—	—	—	J1PVS	—	—	—	—
ZL1AM	153	7000	6615	2595	16875	—	J1KCR	—	—	—	—
ZL1HV	—	—	6115	—	8115	—	J1KRW	—	—	—	—
ZL1DS	—	—	—	5650	5650	—	J1JAW	—	—	—	—
ZL1AIZ	—	—	295	3055	355	3375	J1KXK	—	—	—	—
ZL1BQ	3090	—	—	—	—	3090	J1SWR	—	—	—	—
ZL1BDW	—	2000	1080	—	3080	—	J1ZLA	—	—	—	—
ZL1AQ	—	2450	—	—	2450	—	J1JAA	—	—	—	—
ZL1HD check	—	—	—	—	—	—	J1CPO	—	—	—	—
ZL1AFZ	—	—	9455	860	7515	—	J1ZGT	—	—	—	—
W2AHZ/W2LATL	—	—	4610	—	4610	—	J1KZR	—	—	—	—
ZL1S	—	—	—	—	5130	5130	J1AYR	—	—	—	—
ZL1RT	—	—	3580	—	—	3580	J1ZTH	—	—	—	—

### Listeners' Section

VK—I.2542	+	+	+	4573	points
BKRS195				5840	"
L3377				5410	"
L3885				2615	"
L3308 check					
L4144				8275	"
L4104				6275	"
L5688				10865	"
VK3-I2245				4685	"
L6021				20335	"

#### VK BAND LEADERS

	C w.		Phase
0-B	VK3APK	17800	VK2KM
	VK3QK	12336	VK1GD
	VK3GW	12366	VK3APK
0	VK4JL	5220	VK4VK
	VK3APK	3020	VK3QK
	VK3GW	2190	VK2KM
	VK3AXK	8185	VK2KM
	VK4VK	7745	VK2AXK
	VK3FM	6035	VK1GD
0	VK3FH	6720	VK1GD
	VK3QK	6555	VK3QK
	VK3QK	6465	VK6UT
0	VK3APN	3390	VK2KM
	VK3QK	2690	VK3APK
	VK3JP	2695	VK7GK
0	VK3APN	1085	NH
	VK7GK	945	
	VK3QK	515	

## 21. BAND LEADERS

	C.W.		Phase
1-B	ZL1JU	22225	ZL1AMN
	ZL1BO	17880	ZL1BO
	ZL1AMO	18030	ZL1RW
0	ZL1JU	5810	ZL1S
	ZL1DS	5488	ZL1DS
	ZL1S	3030	ZL1AMN
5	ZL1AMO	5810	ZL1RW
	ZL1JU	6270	ZL1AMN
	ZL1BO	4140	ZL1BO
0	ZL1FA	9575	ZL1BO
	ZL1GX	9485	ZL1AMN
	ZL1GQ	8000	ZL1AFZ
0	ZL1GQ	3748	ZL1AGO
	ZL1BO	2870	ZL1BO
	ZL1AMN	1815	ZL1AMN
0	ZL1BX	105	ZL1BO

## OVERSEAS

C.w. Section	
North	America
10630	WA5TPO
4172	KEHN
2352	KEAN
494	WBRCQ
352	KSHFZ
40	W6ID
6039	WBGBY
48	K6DGO
34	WTIR
3	KCTVPF
8628	W5VNE
4280	WTHIN
34	WELKI
1380	WDYA
1962	W6VW
6	VE5EY
168	VE5GCO
6	XE5AAG
297	KP4BDN

### Results

5618	JADDEO	
4123	JASYKM	
2797	JA5Z	
3900	JA4CW	
672	JAMO	
320	JADCA	
80	JAAKL	
24	JAAQR/5	
12	JADTQ	
8432	JATCV	
5890	JATFC	
3838	JAEBB	
1722	JABKU	
480	JAGDY	
858	JABSS	
594	JADCA	
208	JADHL	
48	JADVA	
8	JADNE	
5828		

## C.w. Section (continued)

Korpspe			
DL2AA	4402	OK3WDC	6
DJ3WJ	3960	OK1AI1	40
DJ4YL	3080	OM2DB	40
DJ4TQ	1120	OM3QX	40
DJ4UF	844	OK1QO	40
DJ7PB	300	OM1CJ	40
DL2LB (K)	4320	OM1EP check	40
DL2LB check	4320	OK2BCJ check	40
DM2AT	1119	OZ1LO	371
DM2BJD	1078	OZ4PM	70
DM4WV	2998	OK4XQ	154
OM2AUO	380	OM5UX	129
DM4YEL	280	OH8W	27
DM4MSP	400	OH5W	23
DM32OC	85	OH1XQ	23
DM2BHG	13	OH8EAD	9
DM2EDO	4	OH8TV	9
EABK	60	OH8AT check	40
E42HR	23	OH8HT check	40
F3KW	880	LZ1AG	20
F9YZ	440	LZ1KAA	10
F9Z	240	L4ACE	10
F8P8	3	L4AQ	10
G3SSO	1312	L4IH 'K1	43
G3DC	788	PA6V	52
G3VMK	60	PA6W	52
KAS3M	300	PA6UW check	340
KAS4FZ	80	SM3CXS	80
KASAF	3	SM3BYG	80
HA1K3S	2	SM7QY	28
HOBLN	2	SM7AP1	28
HB7CB	4267	SM4UJL	28
HB8G	2150	SM3ARE	28
HA6GA	465	SM8CUN	28
HB8DX	80	SM8BVS	28
OM4Z	3	SM3DYN	28
OM3OM	1080	SM6EXE	40
OKIAEZ	580	SM6APS check	40
OKIAEZ	580	SP4IL	40
OK1TA	300	SP2PAA	42
OK1KYS	335	SP3AOB	42
OK1KYS	335	YU1BCD	81
OM3CEG	180	YU2FVW	81

## U.S.S.R.

UAIKAO	(K)	090	UBBGO		9
UAIKAO		200	UTSRF		7
UAJZL		133	USYAR		7
UWYAY		65	USUUD		23
UASKBO	(K)	600	UWBAO		9
UASUJ		2105	UWBTW		13
UAWKE		330	UXAKX		12
UAVTV		324	UFPLA		23
UASKZO		108	UGGEA		9
UASNP		186	ULTKAA		58
UAKW		48	ULTCW		4
UASKHA		43	UHMDI		3
UASGO		33	UHHRJ		10
UAJTA		21	UIBFB		1
UCPKBK		656	UARKCE		130
UPFKBA		248	UWPTT		159
UGRCW		1024	UWPKD		37
UQKCKS	(K)	180	UAWWJ		46
UQRKCT		46	UASVS		10
UQRNKH		18	UASUT		13
UQRZPU		80	UASDD		10
UQREVB		3	UASHM		10
UWAIQ		290	UASOO		10
UWQWQ		264	UAFBN		1
UWWT		156	UAKCC check		1
UWAKB		80	UAKZD		78
UAKCWB		54	UWQJG		1
UWALU		54	UWQJG		1
UWPKLD	(K)	1530	UWCLZ		41
UBSKX		890	UWOWW		8
UTSNY		341	UWATD		1
UBSKDS	(K)	189	UQWQ check		1
South America					
PYISO		1945	CRSGW		1

## Phone Secti

North America		
544	WHSLS	82
1470	K7HLS	102
6855	WJHRY	50
132	WSKIT	403
36	WOPAN	122
945	WSECV/0	82
114	VE3GCO	28
96	KP4BBN	2
3054	4A1LLS	289
5562	HRIKAS	160
1236	HF1JC	44
14290	4G4RA	141

Europe			
DJYL	8940	OZCZC	108
DJYAA	5260	OZGAI	2
DJLAK	5260	OZGR check	
DLFC	1974	OMIADM	1506
DLBLC (K)	1550	OMMABU	208
FKW	5565	OMSBT	130
FRM	463	OMGDB	98
PIAT	402	OMIHA check	
OZSSO	5200	OMIADP check	
CEALW	8	SMVZL	4608
GW3NFP	1234	SM5API	1404
CTIMW	770	SM5BYG	1072
FKW	5565	SM5BNJ	700
HR9KB	4611	SM7MDM	217
HR9UD	289	SM5BUB	160
11AT	1066	SM5VZ	30
JIAA	1040	SM5BNX check	
ON4XG	1794	PA8RBO	1406
ON5DZ	885	PA8ADM	95
ON4PL	240	PA8VY	60
OH7T1	8880	PA8CZA check	
OH2BC	3054	LA7VE	636
OH2BM	347	LA7AJ	949
OH2BA	816	LA8CE	483
OH7QC	88	LA1H (K)	360
OH8RU check		LA7GI	64
OH8OW check		LA7VK	4
OZSKW	3848	LA7H check	
OZLO	3388	SP9AJK	788
OZSKZ	117		

North America					
WPE-8JLL	-	458	WPE-9INP	-	112
WPE-8JLL	-	188			
Asia					
JAB-1320/JA1	-	8160	JA2-3004	-	868
JA1-6076	-	1036	JA2-1880	-	494
JA1-6085	-	1410	JA2-2188	-	234
JA1-5806	-	1387	JA2-1893	-	4100
JA1-3889	-	473			

U.S.S.R.					
UA1-1361B	..	2684	UA3-170-200/UA9	824	
UA3-127-202	..	374	UA8-168-55	184	
UA3-127-11	..	320	UA8-0581	..	24
UA3-170-82	..	308	UQR-037 10	..	30
UA3-142213	check		UP4-0582	..	858
UA4-0581	..	5413	UP2-3386	..	68
UA4-09476	..	1765	UB5-17384	..	1718
UA6-13381	..	210	UB5-0555	..	380
UA6-101-40	..	284	UB5-06519	..	380

## ROSS HULL MEMORIAL V.H.F. CONTEST 1968-1969 RESULTS

**TROPHY WINNER**  
VK5ZKR—C. M. HUTCHESSON

**RESULTS TABLE**  
(Award Winners in bold type)

Call Sign	6-8 Hour Score	7-Day Score	Section
<b>VK1VP</b>	178	213	B
<b>VK2ZCF</b>	599	1302	B
<b>VK3ZHR</b>	138	258	B
<b>VK2ZAH</b>	228	228	B
<b>VK2ZRE</b>	40	110	B
<b>VK3AKC</b>	568	2015	B
<b>VK3ZMS</b>	256	872	B
<b>VK3ZYO</b>	188	804	B
<b>VK3AOT</b>	329	683	B
<b>VK3ZOP</b>	—	592	B
<b>VK3AXV</b>	166	570	B
<b>VK3ZRG/T</b>	224	523	B
<b>VK3ABP</b>	324	458	B
<b>VK3AVJ</b>	—	320	B
<b>VK3ASV</b>	105	273	B
<b>VK3ZOS</b>	—	75	B
<b>VK4ZJT</b>	266	782	B
<b>VK4ZAZ/T</b>	332	759	B
<b>VK5ZKR</b>	826	2108	B
<b>VK3ZSD</b>	392	737	B
<b>VK3ZMW</b>	280	719	B
<b>VK5TN</b>	50	95	B
<b>VK6MM</b>	—	99	B
<b>VK7ZAH</b>	332	884	B
<b>VK7BQ</b>	55	120	B

**Receiving Section**  
VK3—Maurie Batt ..... 529 pts.  
VK5—S. Ruediger ..... 682 pts.

Note: 1296 Mc. Australian and N.S.W. records were broken by contestants VK2ZCF and VK2ZAH, operating in the Contest on 28/12/68 (65 miles) and again by VK2ZCF on 5/1/69 (71 miles).

### COMMENTS FROM THE LOGS

"Conditions for the 6 mx band really bad, fading out on 23/12/68 with few patchy openings during January, though on 26/1/69 a few JAs were heard at good strength in Sydney, though none were worked."—VK2ZHR.

"Feels that it would improve the Contest if separate band awards were given as an additive to the Contest."—VK3ZOP.

"Band conditions were quite poor. Of particular note, the absence of ZL and VK6 openings to this location. Also absence of short skip and 144 Mc. conditions."—VK4ZAZ/T.

"Rather poor 6 mx DX, but 2 mx made up for it from 7/12/68 to 12/1/69; 2 mx was open every day. On 3rd January, we even tried to get a number from the VK6 2 mx beacon, hi!"—VK5ZMW.

"For the effort involved, if nothing else, to go on 578, the contest here was a three-day expedition. The points for 576 should be doubled from those set for this Contest."—VK5ZSD.

"6 metre scoring table ridiculous (for VK3 conditions), should be—  
up to 50 miles ..... 1 point  
51-100 miles ..... 5 points  
101-200 miles ..... 10 points

"Rules should have been published earlier. For scoring, the 432 table could be a little higher—it seems unrelated to average path loss compared with 2 mx. Otherwise, very good."—VK3AOT.

And so another v.h.f./u.h.f. contest passes with low activity on these bands. It is hoped that the future may be brighter. This year saw contestants competing for the trophy and only a narrow margin separating the winner and runner-up.

Perhaps next year will see a greater participation.  
Looking forward to seeing YOUR log next year!

73. Neil Penfold, VK6ZDK, F.C.M.



### W.I.A. V.H.F.C.C.

New Members:			Confirmations
No.	Call	38 Mc. 144 Mc.	
31	VK2ZRG	—	194
32	VK3ZJ	—	114
33	VK3AQR	—	120
34	VK3AOR	—	263
35	VK3ZOP	—	106
36	VK3A9Q	—	108
37	VK3JB	—	225
38	VK3AOT	—	106
39	VK3ABC	—	103
Amendments:			
46	VK3AMK	—	148
47	VK3ZNF	—	230

### CONTEST CALENDAR

2th/5th July: R.S.G.B. 18 Mc. Contest.  
5th/6th July: N.Z.A.R.T. Memorial Contest (3.8 Mc. only).  
12th/17th August: Remembrance Day Contest.  
4th/5th October: VK/ZL/Oceania DX Contest.  
1969—Phone Section.  
11th/12th October: VK/ZL/Oceania DX Contest.  
11th/12th October: R.S.G.B. 80 Mc. Telephone Contest.  
25th/26th October: "CQ" W.W. DX Contest—Phone Section.  
25th/26th October: R.S.G.B. 7 Mc. CW Contest.  
28th/30th November: "CQ" W.W. DX Contest—Phone Section.  
6th Dec., 1968, to 11th Jan., 1970: Ross A. Hull Memorial Contest.  
1st/2nd Feb., 1970: John Moyle National Field Day.

Asia			
JA1JND	11970	JA5ERX	1704
JA1JNT	1480	JA5EMC	8
JA1JNV	636	JA5CBI	500
JA1JNB	506	JA5U	13054
JA1JAT	320	JA5VCU	11768
JA1JNM	334	JA5AD	3213
JA1JNW	354	JA5FL	70
JA1JNB	80	JA5IKR	8784
JA1JMK	84	JA5CMA	7930
JA1JGU	4	JA5TC	2520
JA1JXP	8788	JA5VCV	10
JA1JAA	6609	JA5BKN	7488
JA1JDN	9672	JA5QAB	2415
JA1JNB	1880	JA5AT	506
JA1JXP	3679	JA5RB	559
JA1JBCI	40	JA5CHY	150
JA1JHB	18	JA5ADY	243
JA1JTH	10	JA5ADJ	429
JA1JDI	8473	JA5DFL	285
JA1JGG	246	JA5KCV	525
JA1JEV	808	JA5VLE	1549
JA1JGQ	840	HL5TT	1989
JA1JXW	1088		

U.S.S.R.			
UA1D	812	UR8BO	4
UA1FA	918	UA1OH	1416
UA1KRO (K)	6407	UA1BE	1330
UV32H	446	UA1MA	648
UV3AAE	162	UV3WR	224
UA3KAC (K)	176	UA1BP	70
UP2ER	378	UV3OP	18
UR2AR	2316	UV3PI	18
UR2KAW (K)	2316	UA1MT	12
UA1B	394	UV3OR	8
UV3WE	4239	UA1VP	1222
UV3FG	466	UA1DG	890
UV3ZM	340	UA1BT	89
UR3OD	60	UA1SU	161
UV3ZS	8		

Oceania			
KH8GNE	10620	DUIPH	21464
KH8GMP	3640	VR1L	26258
KH8GKI	2750	KX1L/KG6	18194

Africa			
Z850B	. . . . .	1314	CR5LF . . . . . 48
Z850A	. . . . .	1378	

South America			
OA4JR	1832	YV4IQ	86
OA4GQ	440	PY3AHJ	280

Listeners' Section			
Europe			
DM-7A3610/J	1066	IL-12843	—
DM-2542/L	1274	LA-M6811	414
DM EA4694/L	480	LZ-12135	12
DM-3678/L	32	OE-12680	—
EA-1306	2632	OWL-383	—
EI-221	1300	HAS-146	2457
EE520431	1206	HA6-008	—
A-5052	2730	HA6-007	676
G-1616	678	HAS-146	230
GW-7798	2696	HA3-153	12
EE9EVI	190		

## New Equipment

### SIX METRE TRANSVERTER



The Yaesu Musen Model FTV-650 Six Metre Transverter takes a 28-30 Mc. signal and transverts to the six metre band in two ranges.

**Transmitter:** Input frequency range, 28-30 Mc.; input drive, up to 3v. r.m.s.; input, high impedance; input power to p.a. (S2001), 50w. d.c.; output frequency (two ranges), 50-52 Mc and 52-54 Mc.; output impedance, 52-75 ohms.

**Receiver:** Frequency ranges, 50-52 Mc. and 52-54 Mc.; antenna input impedance, 50-75 ohms; sensitivity (when used with FRDX-400), better than 0.5 uV. for 10 db. S/N (s.s.b., c.w.), better than 1 uV. for 10 db. S/N (a.m., f.m.); image rejection, better than 50 db.; output frequency range, 28-30 Mc.; output impedance, 50-75 ohm unbalanced.

**Power requirements (external):** 6.3v 3.5a. a.c., 150v. 30 mA. d.c., 300v. 50 mA. d.c., 600v. 150 mA. d.c., -100v. 20 mA. d.c.

**Valves used:** two 6CB6s, one 6AW8A, one 12BY7, one S2001 (p.a.).

**Dimensions:** 6½" (plus feet) h., 8" w., 1½" d.

Further information from Bail Electronic Services, 60 Shannon St., Box Hill North, Vic., 3129.

### PROVISIONAL SUNSPOT NUMBERS

DECEMBER 1968  
Dependent on observation at Zurich Observatory and its stations in Lezorno and Arosa.

Day	R	Day	R
1	115	16	84
2	115	17	77
3	123	18	88
4	126	19	101
5	124	20	100
6	123	21	101
7	120	22	119
8	122	23	123
9	140	24	125
10	119	25	122
11	87	26	149
12	98	27	154
13	84	28	133
14	86	29	130
15	86	30	117
16	86	31	110

Mean equals 112.8

Smoothed Mean for June 1968: 107.8  
- Swiss Federal Observatory, Zurich.

### WIDE RANGE TESTER



The 'Rapar' Model SK-100 Tester is a full size meter suited for professional and Amateur use. Features include overload protection, mirror scale, and is fitted with nickel plated test prods.

**Sensitivity:** 100K o.p.v. on d.c.; 10K o.p.v. on a.c.

The 23 ranges include—DC Volts: 0-0.6, 3, 12, 60, 300, and 1200. AC Volts: 0-6, 30, 120, 300, 1200. DC Current: 0-12 uA., 300 uA., 6 mA., 600 mA., and 12 amp. AC Current: 0-12 amp. Ohms: 0-20.0 megohms in four ranges. Centre scale reading: 150 ohms, 1.5K, 15K, 150K. DB: -20 to +17. (0 db. = 1 mW. in 600 ohm line).

Further details from Radio Parts Pty. Ltd., 562 Spencer St., Melbourne, Vic., 300, and City and East Malvern branches.

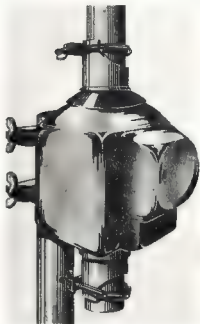
### AUTOMATIC AERIAL ROTATOR

Designed to suit many applications requiring aerial rotation, the Stolle automatic rotator provides positive control from a fully synchronised unit by means of a balanced bridge circuit using transistor amplified control.

The connecting cable between the control unit and the drive unit operates from low voltage (42v.); when the rotation cycle is complete, the power shuts off automatically, and draws no current until it is activated again by turning the control knob.

The drive unit consists of a water-tight cast metal housing with hollow shaft to take mast up to 1½" diam. Other features include: High carrying capacity (max. load 112 lb.), motor shaft bearings permanently lubricated, rotation angle 360 deg. (limited by stop at end of rotation), speed 1 rev. per minute, magnetic disc brake with self-restraining worm gear holds aerial in position.

The control unit is housed in an attractive moulded case, with 240 volt a.c. power supply (80w.). Push-button control sets the direction of rotation, left to right, while the dial indicator shows the direction of the aerial at all times.



Trade price: \$45 plus sales tax. Further details from R. H. Cunningham Pty. Ltd., 608 Collins St., Melbourne, Vic., 3000.

### NEW W.A. BRANCH

R. H. Cunningham Pty. Ltd. have opened a branch office in Western Australia at 34 Wolya Way, Balga, Perth, 6061. Manager is Bob McGrath, and the phone 49-4918.

### RADIO PARTS CHIEF OVERSEAS

Mr. Allen Swann, governing director of Melbourne wholesale components house, Radio Parts Pty. Ltd., is currently in South America on a three months' holiday-business tour. Accompanied by his wife and daughter, Mr. Swann will visit principal capital cities and will investigate electronic manufacture and development. He is expected to return to Australia about May 24.

### TECHNICAL AWARDS

The awards for technical articles published during the year ended February 1969 have been made to the following Amateurs

H. F. Ruckert, VK2AOU.

A. S. Lundy, VK2ASI

R. B. Zielinski-Petersen, VK5ZIE.

The Publications Committee extends its congratulations to these gentlemen, and thanks them for their submissions.



# Overseas Magazine Review

## "QST"

December 1958—

**What Is R.F.T.Y. KIPFL?** Description of the process with which that need to be taken to get on the air on r.f.t.y. including modulating and demodulating techniques.

**The Ching Magister, W8KXV/L.** This is a device for increasing the amount of frequency drift or keying chirp from a v.f.o. An ordinary transistor radio can be used as an indicator if required. The answer for the "transceiver man."

**Gimmicks and Gadgets, W8DSD.** The author describes a converter to put v.h.f. fm 128-146 Mc. into the standard v.h.f. fm. h.c. band of 88-108 Mc. and receive it on a normal f.m. receiver. Hardly applicable in Australia without an f.m. service.

**A Solid State Predict Detector for the HEO 66, W6PHF.** A silicon diode ring de-modulator (detector) and i.f. stage module to improve s.b. and c.w. operation of an old standard receiver. The technique could probably be applied to a number of other receivers in use in Australia. ARB's could use this "as is," whilst ARRL's, ECARs, ARBs, etc., will require a change in the i.f. amp. in the detector to suit the receiver being modified.

**An Impedance Matching Method, K7DOK.** Combining the balun and the network. Design details are given for tuning networks for a number of Amateur bands.

**Is a Balun Required? W1LCP.** Lewis McCoy points out the advantages and disadvantages to be obtained from the use of these devices.

**Synchroscop Weak Signal Detection with Real Time Averaging, W8DOK and R. T. D. W8DOK.** (R. T. D. is Ross Adams, M.D., who was well known for his Amateur activities before leaving for the U.S.A. Ross describes a system of detecting very weak signals out of the noise by using a synchroscope in use in medical research and has now been applied to 144 Mc. moonbounce work.

**A Solid State Audio Filter, W8BNK.** An i.f. band pass filter for 144 Mc. (two coils, loading coils), one FET and an R.C.A. I.C. CA3020) to be used with receivers or transceivers. The bandwidth is about the theoretical limit as Morse at 23 w.p.m. needs a minimum bandwidth of about 75 cycles.

**Further Improvements in the 222-3, W4AK.** A simple method of reducing spurious heterodyne products that have been observed in the output of the 222-3 transmitter. Interested parties are referred to a previous article by D. P. Shafer in "QST" Nov. 1958. It may be appropriate to point out to members that the Public Library in Melbourne and no doubt others also have a large number of overseas magazines available in the reading room. A copying service is available at reasonable prices.

**A Two-Band Transceiver, Pre-Amplifier for 1500 Mc. W8WAX.** Using special transistors, a low noise r.f. amplifier is described.

**A 40 Ft Self-Supporting Tilt-Over Mast for 144 Mc. W8WYU.** With a title like that who needs a resume!

**Combine V.H.F. Bandpass Filters, W2CQH.** Since narrow interdigital filters tend to be too large and expensive, the author describes the author loads the ends of the lines with capacitors.

## "RADIO COMMUNICATION"

December 1958—

**A Design for a Solid State Linear Amplifier, G3HIF.** The author discusses the stability and "fail safe" features of a 144 Mc. linear amplifier are discussed. The criteria for interstage coupling are established. A simple theoretical approach to the design is suggested. The parameters of a complete amplifier are determined in a series of examples. The amplifier is stated to be capable of 20 watts p.e.p. (in British tradition, this should be output). It is a very neat design that appears to be reasonably easy to duplicate and could interest a large number of our v.h.f. men. The 2N3638 transistors are available at reasonable prices in A.M.S. It may also carry lessons for the h.f. men.

**Technical Topics, G3VA.** In this regular review type feature, Pat Hawker discusses Linear Detection and this is followed by "Narrow Band Noise from 2.85MHz" who dis-

cusses the receiver requirement necessary for reception of weak c.w. DX in the presence of strong interfering signals. "What's happening in the co-ax?" PRZF set in details of a simple device for checking the current flowing in the outer sheath of the co-ax feeder. It consists simply of a toroid wound with a number of turns feeding a c.w. indicator. "Voice Peaks on S.S.B." and "Capacitively Loaded Diplores" are the other two subjects discussed.

**GALIB R. C. and I. Bridge.** The author sets out "the aim of the design" after the introduction, but, nowhere in the article does he set out a specification as it was achieved, nor does he give a clear indication of the order of accuracy to be expected from the bridge. This latter probably depends upon the calibration facilities available to the builder and the in-built precision of one or two critical components. This is probably the most detailed bridge construction article which has been published.

## "SHORT WAVE MAGAZINE"

December 1958—

**Direct Reading Reflexometer, G3UPL.** This unit which is based on the Monimatch design from "QST" has a number of things to recommend it. First, it is a simple unit to build with individual adjustment pots, semi-solid dielectric co-ax is used which makes for easy assembly. Second, the Monimatch design will give i.f.s. of 150 meters SWR less than 10w. input on 18 Mc. and the unit is very easily built into an Edgewise type disc box.

**R.T.Y. Station Control Amplifier, G4LT.** This is a continuation of the article which commenced in the November issue of this Journal.

**Reversing the Car Electrodes, G3EPP.** In these days of alternators, it is, of course, necessary to make major alterations to the device itself before one can successfully use it. However, the matter is much simpler. The author describes the way to go about it. I have heard that with most cars it is only necessary to (1) reverse the battery polarity, (2) momentarily close the cut-out manually, (3) start vehicle and check that charging is now taking place in the reverse direction.

**Notes on the Trio JR-5000 Receiver, G3HIF.** Having purchased an inexpensive receiver and become aware of its shortcomings, the author proceeds to modify it and overcome them.

**Centre Fed World Band Aerials, G3OGR.** Design considerations for various types, feeding and tuning. Simple notes and serial tuner.

**Reliable Mast for Beam Working, G3MVF.** The author gives a simple unit for manual operation is described.

**Transistor Converter for Four Metres, G3PRX.** A mini converter to suit a tunable i.f. of around 30 Mc. is described.

**The 2X Mini Quad, G3PHO/ZLBRD.** The 30 mK quad is only 10 feet on a side and elements are spaced 7 ft. 9 in. apart. Both elements are driven. The author reports that the design is simple and easy to construct. He considered satisfactory until he built this quad. After completion there was no trouble. Of course a shortcoming of the design was that it was possible to make a quad for 40 which was no bigger than the usual 30 mK quad. What say someone? VK3AAR at Warrambool is supposed to have one.

## "73"

November 1958—

**Computer Card Transmitter, K1RJJ.** Plug-in components. (Grid leaks do not plug in.)

**Crystal Filters, W8RTT.** The heart of s.s.b. This is an article which intrigued your reviewer greatly on a number of points. (1) The author is employed by a lead compound. (2) He specifies his so-called ideal characteristics such as 6 to 80 db. shape factors of about 1.5 or 2. (3) He quotes "Electronics" advert on p. 15 quotes the Silver Sentinel 2221 and Modern Guardian 4MB1 amplifier factor 5 to 50 db., 1.6/1 and 1.5/1.

Pop charts are shown about 45 db. down on the 2221 and 55 db. down on 4MB1, showing that the ultimate rejection is worse than the curves quoted by the manufacturers. And since McCoy has sold filters for some time, one would believe, attainable. Maybe there is a strong argument for the home grown product which is made in a similar manner than the highly advertised U.S. line, is cheaper and no worse.

**Traps Shooting Solid State, K1PBY.** Modern day problems solved—the author discusses methods of trouble shooting solid state circuits.

**L.C. Frequency Counter, W8HRS.** Easy to build counter for Amateur applications. An interesting article for the recent solid state

fan. The author claims the 20 Mc. counter can be built with \$120 (U.S.) worth of semi-conductors, etc.

**C.V. Transformers for Ham Applications, W2ACW.** Constant voltage transformers are very useful devices and with most pieces of equipment are very useful for maintaining a constant voltage in the shack. Now/then/this, this, some equipment, especially if fitted with electronic s.f. regulators, does not take kindly to the waveform distortion inherent in the output of a c.v.t. Voltage should be measured by a moving iron meter or current by moving iron, hot-wire or thermocouple type r.m.a. reading instruments.

**A Space Communications Olayee, K6SW.** It isn't going to be easy to keep in touch. Perhaps one should ask him if space travel is easy?

**Sargases in the Skies, W1EET.** Pulsars—what are they?

**Using Thin Wire Antennas, W8EEY/1.** Fooling the landlord, or what the eye does not see the heart does not grieve.

**A 7 Mc. Transistor Transmitter, WAJND.** An all transistor rig for 40 mK running 8-10 watts input and with a i.f. receiver in the 20 mK band. Actual operating power is over 45v super duty B battery. This seems a good place for one of those small b.c. receiver/converter type superhet rx's with b.f.o.

**Double Conversion, K6CWM, K6CWM, K6CWM.** By using the 1f strip at 35 Mc. from BC458 he double converts his BC448 and makes it suitable for a.s.b.

**Double Conversion, WAJZ.** A "do all" test set for receivers, the name on cover investigation comes from "Generating and Training". According to the author it does what he says it does and is a waste to look at.

**Barney Your Wiring, K6LL.** A professional wiring job for home-brew of lovely, laced looks.

**Copper Wire, W1EET.** The forgotten component. The author discusses wire conductivity of various metals and alloys, wire gauges, etc.

**What Is Yes Can't Take It With You? W8ABM.** Or taking the Amateur station to college.

**The Thermistor, W8HIF.** How to use this device for measuring purposes, especially temperature measurement.

**Using G.C.E. in R.T.Y. Series Wound Motor, W8HIF.** Some relay type machines use series type drive motors with a condenser type governor and consequent sparking at the contacts, which interferes with reception. Our author is using a G.C.E. to conquer the demon spark.

**High Voltage Transformers, K3VVC.** The author gives type numbers with Vbevo from 80 to 1000v.

## FAIRCHILD INSTRUMENTS

Details will shortly be released of the range of Fairchild instruments available in Australia direct from Fairchild.

The Fairchild instrumentation range offers industry a broad line of digital multimeters, panel meters, electronic time and frequency measurement instruments and a curve tracer that is fully programmable.

The following instruments will be available:

Model 7050—A low cost digital multimeter.

Model 7000—A half rack digital multimeter.

Model 7300—An integrating digital multimeter.

Panel mounting digital meters.

Model 8040—A low cost frequency meter.

Model 8050—A 30 Mc. frequency/period meter.

Model 8220—A 500 Mc. digital frequency meter.

After-sales service will be provided and all information re availability, specifications, etc., can be obtained by contacting Fairchild at their Croydon, Victoria, production plant, or any of the Fairchild representatives.

# 1969 Annual Report to Federal Council

The Federal Council of the W.I.A.,  
Gentlemen,

## PREAMBLE

I present to you, on behalf of the Federal Executive, a report on its activities during the period subsequent to the 1968 Sydney Convention, as required by section 33 (iv) of the Federal Constitution.

The report follows the six sections traditionally used to classify motions at a Federal Convention, and deals with each section in turn. For each matter, where possible, I present a statement in the following form:—

- Institute policy
- Subsequent actions.
- Future determinations.

In beginning this report, I wish to state that I have throughout referred to "Executive" or "members of Executive" in relation to the matters attended to on behalf of the Institute. I have done so because I feel that W.I.A. officers accept a duty to work on behalf of the organisation. The satisfaction gained is gained because the organisation is strong and active. I believe that any kudos attracted by actions of W.I.A. officers should attach to the W.I.A.

Of course, it is a corollary that the organisation cannot progress without hard work being done by its honorary officers, and administrators start. To the members of Executive who have given me, and therefore the Institute, such fine support, I am grateful and thankful for a job well done!

## 1968-69 FEDERAL OFFICERS

**Federal Executive:—**  
Federal President: John Battick, VK3OR.  
Federal Vice-President: Michael Owen, VK3KI.  
Federal Secretary: Peter Williams, VK3ZL.  
Federal I.T.U. Liaison Officer: George Pither, VK3JH.  
Federal Treasurer: Kevin Connolly, VK3ARD.  
Federal Executive Member: Al Seesman, VK3JH.  
Federal Activities Officer: David Rankin, VK3JQV.

## Federal Co-ordinators of Activities:—

Federal QRL: Ray Jones, VK3RJ.  
Federal Intruder Watch: David Wardlaw, VK3ADW.  
Federal Radio Editor: Ken Pincoff, VK3AFJ.  
Federal S.W.L. Eric Trebilcock.  
Federal Awards Manager: Geoff Wilson, VK3JXK.  
Federal Confesse: Neil Penfold, VK3ZDK.  
Federal W.I.A. Y.R.S.: Jim Webster, VK3ZCW.  
Federal Public Relations: John Wicks, VK3ZCW.  
Federal Historian: George Gower, VK3AG.  
Overseas Publications: Alf Chandler, VK3LCL.

## Immediate Past Federal President:—

Max Hull, VK3ZSL.

## Section I—CONSTITUTIONAL

### MATTERS

#### PROPOSED NEW FEDERAL CONSTITUTION

It was reported to the last Federal Convention that the solicitors acting on behalf of the Institute in relation to this matter had said that further delay was likely. In the course of this year, Executive was advised by the solicitors that, except in relation to four matters, no further action would be granted the Attorney-General's approval. With one exception, the matters were of a minor machinery nature. As drawn would be made in relation to the proposed postal referendum. These provisions had been inserted at the request of the N.S.W. Division and had been the subject of extensive debate.

The matter has been referred to the Divisions for instructions. Once the Divisions are in agreement as to what course is to be adopted, Executive is confident that this long standing matter can be finalised. An appropriate motion has been submitted to Federal Council for consideration at the Federal Convention.—

Motion 1969/1: "That this Federal Council formulate an instruction to the W.I.A. solicitors to enable them to proceed with the submission of these amendments to the Attorney-General."—Moved F.E.

## EXISTING FEDERAL CONSTITUTION

During the year, Federal Secretary has undertaken a great amount of research through back records of the Institute in order to check the exact constitution in position at that time. Executive will prepare copies of the present Federal Constitution embodying all past amendments and become the official Federal Constitution. All members of the Federal Council will thus all have a copy of the existing Constitution in common form.

A number of motions referring to amendments of the present "old" Constitution will be before the 1969 Convention for discussion, and I commend to you a perusal of Section X, which lays down the procedure to be adopted if it is wished to amend the existing Constitution.

## Section II—POLICY ITEMS

### "AMATEUR RADIO" MAGAZINE

1.1.1. "That the cost of 'Amateur Radio' to Divisions be increased." This motion was moved by the publishers, the Victorian Division, who sought an increase in the cost to members of five cents per copy. This would have brought the cost up from five cents to twenty cents per copy. However, after long debate, this motion was lost. Following that motion, the Victorian Division introduced two "motions arising:—

2.1.1. "That a sub-committee be formed to urgently investigate all aspects of 'Amateur Radio' production comprising representatives from VK3 Division and Federal Executive," and also:

2.1.2. "That the cost of 'Amateur Radio' to Divisions be increased by twenty-four cents per member p.a."

These two motions were carried by majority.

(b) Subsequent Action: The Publications Committee of the Victorian Division has increased the cost to members from fifteen to seventeen cents per copy for 1969-70, and the effect of this action is to be reported in the financial statement. Executive appointed Federal Vice-President VK3KI to convene a sub-committee to discuss the matter. This was done by Federal Treasurer VK3ARD, Victorian President VK3JQV and the Editor of "Amateur Radio", VK3AFJ. This sub-committee undertook a very detailed investigation, over a period of six months, of all aspects of publishing "Amateur Radio". The committee has concluded its investigations and has submitted a twenty-page report to Federal Council. The convenor stated that he was satisfied that the Publications Committee had done a most demanding job in a most responsible way. He thanked the Editor and VK3 President for the many hours put into this work over six months, and also thanked Don Wilson, VK3ZDK, who sent quite a lot of constructive material and comment to the committee.

During the time the sub-committee was carrying out its investigation, close liaison was maintained between Federal Executive and the Division publishing the magazine on behalf of the Victorian Division. VK3 President and the Editor of "Amateur Radio" attended Federal Executive meetings to discuss matters arising in relation to "Amateur Radio". The Executive was at one stage asked to state its views on the future of "Amateur Radio", which was followed by the Publications Committee.

"Federal Executive acknowledged the vast amount of effort put into the collection of material for submission to Divisions by K. Pincoff and the Executive undertakes to direct the publisher in relation to the future of the magazine, but suggests that the following points should be acceptable:—

- The magazine should continue to be published.
- Any arrangement by virtue of which the provision of working capital is not a burden on the Institute or on a Division is desirable, subject to the retention of editorial control by the Institute.
- Any arrangement should result in some profit to the Institute.
- F.E. recognise that the negotiations towards these points must be left in the hands of the publishers."

The sub-committee investigated and reported on:—

- "Outdate" publication of "Amateur Radio".
- Actual costs of "Amateur Radio".
- Future costs of "Amateur Radio".
- Letter from VK3ZDK.

The sub-committee reached the following four general conclusions:—

- That "Amateur Radio" in anything like its present form cannot reasonably be produced more cheaply by other methods by other printers.
- A partial solution lies in the future exploitation of the advertising potential of the magazine and to achieve this it is economically to utilise the services of a specialised advertising agency. This had already been done.
- That if Divisions wish Divisional Notes to be restored or any other feature to be added, this will involve additional cost in the case of Divisional Notes, a cental. In the last report this is a decision for the Divisions, not the publishing Division, as in fixing a price the Divisions must accept responsibility for the massive cost.
- It seems likely that costs will continue to increase. It will be reasonable for the publishing Division to continue to seek for "increased" costs. These cannot, at this time, (November 1968) be quantified, all we can say is that we are satisfied that further cost increases cannot be absorbed.

During the investigation it became apparent that more data was needed by the publishers to assist them in making decisions relating to the magazine. Accordingly a questionnaire was issued to all members of the Institute. The results reported on in recent issues, and a "Federal Comment" in a recent issue referred to the overwhelming response to the questionnaire. A complimentary copy to a friend. A statement of costs of the magazine to W.I.A. members, and to compare it with the cost of direct subscription was also mentioned.

In addition to the material supplied by Queensland Division, N.S.W. Division made other contributions. Comments were forwarded to the sub-committee. One of these referred to the transfer of all publications to Federal Executive control in accordance with the new Constitution. Another comment referred to the deletion of "Pubcom" reports from "Amateur Radio"—Executive passed this matter to the Editor for comment and his reply was forwarded to the N.S.W. Division.

During the year, Executive has continued to use the official organ of the Institute to inform members on various matters.

(c) Future Determinations. At the 1968 Canberra Convention, the Publications Committee of VK3 Division will report on last year's activities, and it is hoped that Federal Council will be able to come to some decision on the "official organ" of the Institute. I believe that any agreement must be realistic and take economic points into consideration. Federal Council wish one Division to publish on its behalf. VK3—the publishing Division—has again moved the question of "Amateur Radio" to Divisions be increased.

The aspect of publication of "Amateur Radio" by Executive raised by VK3 Division during the year, was discussed at the Federal Convention by the Institute of the proposed new Federal Constitution. As pointed out earlier, Executive has asked for instructions on this constitutional aspect.

## YOUTH RADIO SCHEME MATTERS

1.1.1. "That the Youth Radio Scheme be raised at the 1969 Convention as a result of motions moved by the N.S.W. Division, viz:—

1969/2: "That Federal Convention confirm that the Youth Radio Scheme be raised at the 1969 Convention of the W.I.A. as 'Wireless Institute of Australia Youth Scheme' and that the scheme be an educational instrument of the Wireless Institute of Australia for the promotion of radio and electronics in schools and clubs."

1969/3: "That in view of the fact that so many members of the Youth Radio Club Scheme are now members of the Youth Radio Club of Australia, that the Federal Convention

encourage all Divisions to institute a form of student scholarship at no cost to the Youth Radio Club members."

1968/2.4 "That in view of the Youth Radio Club Scheme of Victoria and its associated correspondence section claiming to be affiliated with the Youth Radio Club, it was decided by the W.R.C.S.A. that the Federal Convention endeavour to strengthen the bonds between these two bodies and the Wireless Institute of Australia."

These should be read in conjunction with 1968 motion 2.1.1: "That the W.I.A. provides a service for Youth Radio Clubs designed to assist the development of these Clubs. It may not accept any responsibility for any action or views expressed by or on behalf of any club, and the responsibility of this motion be generally made known."

(b) Subsequent Action: Following the 1968 W.I.A. Federal Convention, a meeting of teachers assisting with Y.R.S. activities was held in Melbourne. These were Y.R.C.S. Supervisors from VKC 3, 5 and 7, and others, and 1 attended their Convention by invitation. The meeting decided to form a Federal co-ordinating body of their own—the Y.R.C.S.A.—for co-ordinating syllabuses, standards, administration, etc. The meeting also agreed for close cooperation with W.I.A., and a wish to be affiliated with W.I.A. but not controlled by it.

The Federal Executive was later supplied with a copy of the motions passed at the Y.R.C.S. Convention by the teachers attending, and also implemented the same. It was decided that the Y.R.C.S.A. motions. Subsequent to that the N.S.W. Division drew Executive's attention to the decisions made in Melbourne in June with regard to the Y.R.C.S. and the Executive also requested Executive to take immediate steps to ensure that the policy of the Institute was adhered to.

Executive referred the matter to Federal Co-ordinator of W.I.A. Y.R.S. and asked for clarification of the relationship between Y.R.C.S.A. and W.I.A. and the Y.R.C.S. representative indicated that Y.R.C.S. was in effect a "separate" body with its own organization, but was affiliated with the W.I.A. in different ways in different States.

After much discussion between Divisions and Executive on the matter, Executive requested the Federal Executive to consider how to implement W.I.A. policy as it affected Youth Radio Clubs.

It is planned for Executive to note from reports from the Youth Radio Scheme is indeed flourishing. Executive thanks the teachers who are assisting W.I.A. with its objectives.

(c) Future Determinations: No motions on Y.R.S. or Y.R.C.S. were brought forward for the 1968 Convention. There will be a report from W.I.A. Y.R.S. Co-ordinator to consider. No reports on Y.R.C.S. have been received with Motion 1968/2.3 have been received by Executive, nor has any report been submitted on 1968/2.4.

#### NOVICE LICENSING

(a) Policy: This was determined in 1958 and amended in 1963 and 1968. The policy item 1968/2.1 reads:

"That the following proposals regarding Novice Amateur Transmitting Licences be used as a basis for the examination by the Federal Executive with the appropriate authorities—"

- (a) Morse code test of 5 w.p.m.
- (b) Elementary examination in radio theory at a lower standard than required for A.O.C.P. and P.M.G. respectively.
- (c) Operation to be allowed on the 3.5, 3.7 and 8 Mc. bands using c.w. only, and control.
- (d) Power maximum 10 watts.
- (e) The A.O.C.P. examination must be taken by the end of 12 months after the license is issued and be renewable except at the discretion of the P.M.G. Department."

At the 1968 Convention the following motion was passed: "That the Institute no longer advocate the issue of Novice Licences by the Australian Administration, with the reduction in the code standard," and then a motion arising was carried.

1968/2.5.1 "That the Federal policy item Fed. 17 be amended by adding the words 'It is recommended that the Institute should not present a financial report which will refer in detail to these I.T.U. Fund matters. The amount and kind of special bank account is \$6,306 at the present time.'

(b) Subsequent Action: Executive has undertaken no activity in relation to Novice Licensing, believing that there is no current W.I.A. policy in relation to Novice Licensing, following 1968/2.5.

(c) Future Determinations: At the 1968 Convention Federal Executive will be asked to be asked as a matter of course. Executive will request some guidance from Federal Council in relation to the current W.I.A. policies 1968/2.5 and the motion arising 1968/2.5.1.

#### CODE SPEED TESTS

(a) Policy: This was determined at the 1968 Federal Convention by two motions brought forward by the VKC Division and passed by Federal Council.

1968/2.6 "That Federal Executive consider the introduction of code speed tests within and conducted by the W.I.A. with a view to allowing any member so wishing to increase his code speed and be able to obtain a proficiency award in the future."

1968/2.7 "That Federal Executive produce if necessary a code proficiency certificate to which code proficiency awards could be attached."

(b) Subsequent Action: Executive has been unable to consider this with sufficient attention to be able to suggest any action at this stage. The matter was discussed briefly with the VKC Council by Federal President and Vice-President during a recent visit to Tasmania. The matter is still being considered by Executive.

#### Section III.—ADMINISTRATION:

##### I.T.U. FUND MONIES

(a) Policy: This stemmed originally from the policy item Fed. 18 inserted in 1963:

"That the following plan for the next I.T.U. Convention be implemented—"

- (1) That P.E. maintain a brief for the official W.I.A. representative.
- (2) That means of financing representation be implemented.
- (3) That by Easter 1965, the Divisions shall raise a minimum total of £3,900 (£7,000) by a minimum contribution as follows—  
VK1 £200 (£300), VK2 £300 (£400), VK4 £235 (£350), VK5 £200 (£300), VK6 £235 (£350), VK7 £200 (£300).
- (4) That the contributions to the fund be paid to Federal Executive each six (6) months and Federal Executive shall hold the sums in the I.T.U. Fund.

In addition, policy item I 01: "That after the targets for the I.T.U. Fund have been achieved, all future monies collected for similar purposes be collected in a general fund for the representation of the Amateur Service."

And motion 1967/2.5: "That in accordance with G.S. item 1 of the 1968 Federal Convention those Divisions who have not fulfilled the quota laid down do so from Divisional funds and immediately order to I.T.U. Fund monies."

At the 1968 Federal Convention a number of motions were brought forward relating to handling of I.T.U. monies. Only one of these was carried:

1968/2.2.1 "That the Executive transfer the I.T.U. Fund into a separate bank account on or before the 31st day of May, 1968, and that to the balance shown in the accounts of the Institute dated the 28th day of February, 1968, and any further contributions to the fund received by the Executive after the 28th of February, 1968, shall be added the sum of \$300 which is the deposit of the interest which would otherwise have accrued to the Fund from the first day of March, 1964, until the 31st day of May, 1968."

This motion gave direction to Executive on the matter of interest accruing to I.T.U. monies, and established a policy for banking procedures.

(b) Subsequent Action: Following the 1968 Convention, Executive took steps to comply with this motion 1968/2.2.1, and I.T.U. monies are now contained in a separate bank account, and the interest thereon. The VK2, 4, 5, 6 and 7 Divisions have filled their quotas as specified in Fed. 18, in accordance with 1967/2.5.

(c) Further Determinations: At the 1968 Federal Convention, Federal Treasurer will present a financial report which will refer in detail to these I.T.U. Fund matters. The amount and kind of special bank account is \$6,306 at the present time.

#### Section IV.—I.T.U./I.A.R.U. MATTERS

##### REGION III

(a) Policy: Motions setting the background to Region III activities are from 1963 and 1967. The following motions were passed by the Council conducted long debates on these matters. At the Hobart Convention, motion 1967/4.1 was carried:

"That Federal Council examine the way and the means by which liaison and assistance can be given to other countries in Region III, and that Executive consider the merits of the attached proposals, alternatives and questions."

During discussions on that motion, Divisions agreed that Executive should investigate the

whole matter and put a proposition to the W.I.A. Motion 1.1 carried this agreement:

"That the Executive prepare a detailed submission suggesting a policy to be adopted in relation to the I.A.R.U. Region III, South East Asia and the Indian Ocean Region III."

In addition, 1967/4.5 was discussed. "That after due consideration of the attached Region III, report and any other evidence, the Council outline its policy on the five questions listed at the conclusion of the said report."

After further long discussion revealed that Federal Council needed more time for reflection and more information on Region III before coming to a view. Accordingly, it was resolved that the debate on this motion 4.1 be adjourned 'till die'."

Following the 1967 Convention, Executive members contributed material to the Divisions, and appointed a sub-committee to implement 1967/4.1 which issued a proposal. During the year, an Executive member visited many overseas countries during the course of a business trip, and kept P.E. informed on current thinking.

As a result of these reports sent back to Executive, it was decided to recommend to the Divisions the "Coastal" motion 1967/4.1 called and that it be held concurrently with the 1968 W.I.A. Convention in Sydney. W.I.A. agreed to this, and accordingly Executive issued the "Coastal" motion 1967/4.1. At the 1968 Congress is now a matter of record.

At the 1968 W.I.A. Convention, several motions were passed which related to Region III. It was resolved that "Federal Council of W.I.A. endorse the action of Federal Executive in convening the Inaugural Region III Congress, and that the Executive will consider financial support to any Region III organization formed as a result of the Congress."

The resolution was decided formally to the opening session of I.A.R.U. Region III, Congress that evening, Friday, 18th April, as representing Australia's position.

1968/4.1 "That immediate action be taken to implement the time arising from the discussions under Items 4.3, 4.4, 4.5 of the 1968 Federal Convention, Items 4.1, 4.5, 1967 Federal Convention, Item 4.1, which is to require Federal Executive in relation to Region III organization."

1968/4.1.1 "That the W.I.A. shall contribute \$500 by December 1968 as its contribution to the I.A.R.U. Region III organization, and a similar sum by December 1969 to the Region III, and to provide such sum each Division shall collect 50 cents in respect of each of the Region III organization's finances."

1968/4.1.2 "That Federal Secretary convey the following statement to I.A.R.U. Region III Congress:

1. The W.I.A. thanks the Amateur Societies of Japan, New Zealand, the Philippines and the I.A.R.U. Headquarters for sending delegates to this inaugural meeting of Region III.
2. The W.I.A. is desirous of joining with these countries in co-operating to achieve a workable regional organization, and if the participants of this meeting so require, W.I.A. will offer what administrative assistance it can, and provide what office facilities it can.
3. The W.I.A. will authorize its Federal Executive to contribute \$500 each year for this triennial ending in 1971, to assist the Region III organization's finances. This sum will be reviewed before the second triennial commences."

Following the Region III Congress a statement was issued which included the following points on organization:

"It was resolved that there will be a board of directors, one from each Society represented at the meeting, and that the President of the I.A.R.U. also to be a Director. The Wireless Institute of Australia is to provide a representative and be appointed by the Institute in consultation with the W.I.A. Director."

It was further resolved that monies will be contributed by the Societies of Japan, Australia, New Zealand and the Philippines in proportion to their resources, such monies to be applied to purposes approved by the directors."

The meeting resolved that the Secretariat formulate draft rules to be circulated amongst the directors for discussion, and that subsequent opinions will be collected by the Secretariat and re-circulated to the Directors with a view to the adoption of the rules."

"It was resolved that Directors and Secretariat plan future Directors' meetings."

The meeting placed on record its gratitude for the assistance of the W.I.A. in holding the next Plenary meeting to Tokyo 1971."

(b) **Subsequent Action:** Letters and expressions of thanks for the action of the Institute in calling the Congress were received from overseas countries. The delegate from Japan made a presentation to the Federal President of a Yarusu Kusen PT DX-400 transceiver which was received on behalf of the Institute and placed in the Institute's station VK3WIA. All participants in the Congress and Convention expressed their appreciation of the Institute's hospitality provided by the Institute Federal President thanked the N.S.W. Division for organising the facilities and hospitality which were very appreciative to the occasion.

Following the Region III, Congress, Federal Executive and the Federal Council met and the Congress that amounted to little more than a broad expression of general policy. To a lesser extent, the motions passed by the Federal Council dealing with these matters could be categorised in a like manner.

It was, at least, clear that the W.I.A. was to appoint a "Secretariat" in consultation with the W.I.A. Director. Of immediate concern to us was the fact that the participating Societies had undertaken to provide funds for the Secretariat. It was also noted that the matter would be remitted to the W.I.A. as providing the Secretariat.

The Executive took advice on the matter generally and were told, firstly, that no "Club" or similar organisation could exist apart from its rules or other constitution, and the intention of the Congress in this regard was not "create" any organisation. Secondly, if monies were collected on behalf of a non-existent organisation, it would be in accordance with the general tenor of the Congress statement that this would be at the risk of the W.I.A. and, particularly, the personal risk of those officers of the W.I.A. who authorised the payment.

It was also pointed out that if money was merely collected and accumulated, difficulties could arise as to what to do with those funds if, in fact, the organisation did not come into existence.

In the context of our position in South East Asia, it seemed that we could not afford to disregard this advice. Federal Executive and Council decided to ensure that the success of the Sydney Congress was built upon, and we also felt that a vigorous approach was required to the W.I.A. to register into an actual working body.

At the outset, we ourselves were somewhat unsure of the advice. Federal Executive and Council decided to ensure that the success of the Sydney Congress was built upon, and we also felt that a vigorous approach was required to the W.I.A. to register into an actual working body.

At the outset the Executive appointed myself as the W.I.A. Director, believing that this was the logical extension of my position as Federal President, in addition to the somewhat difficult initial stages.

The other members of the Secretariat were Peter Williams (Secretary-General), Michael Owen, David Rankin and David Wardlaw.

I suppose that as the Region III organisation was not in formal existence, we were initially in a position to be appointed to deal with the matter, but we felt it important to recognise the decisions of the Congress and by calling a group of representatives to deal with the problem of the overseas Societies involved.

We then settled down to the long and tedious task of setting up the interim constitution. Our view that a constitution was essential was rapidly re-inforced by the refusal of the Nippon Radio Club to permit J.A.S. to remain in Japan without the production of an appropriate constitution.

Our first attempts at an interim constitution failed to receive unanimous support. A copy of this first constitution and the covering explanatory letter was annexed to the copies of the letter submitted to Federal Council. As a result of protracted correspondence, a series of amendments were formulated based on the views of the W.I.A. and both Headquarters and the other member Societies involved. These amendments were set out in a letter annexed to this report as submitted to Federal Council. It was then agreed that an interim constitution incorporating these amendments will be acceptable to all the Societies concerned. It was then agreed that the interim constitution incorporating these amendments (A copy of this re-printed constitution was submitted to Federal Council) I say, believe that this interim constitution will be acceptable to the other Societies in the Region, and I commend it to the Federal Council and I believe that the Council will do so approve. I have every hope that within six weeks we shall have an interim constitution which will enable us to commence the Region III organisation to commence real operation.

There are two comments that I should make. I stress that the constitution we are presently discussing is only an interim measure to provide the Region III organisation to come into existence. The adoption of a final constitution will be the primary task of the next Plenary Session. The delegates to the Plenary have revealed widely diverging views and we must not under-rate the difficulties of resolving these differences.

The adoption of the interim constitution has involved us with much correspondence, and has, I think, brought us closer together, both with other Societies in the Region and with I.A.R.U. Headquarters.

I have not dealt with the details of the proposals contained in the interim constitution. These are adequately set out in the material annexed to this report. This material also illustrates the vast amount of work that this task has involved.

Our aim has been to produce flexible rules but with sufficient detail on procedural matters to enable us to establish, if it ever becomes necessary, the procedural validity of what we have done. In considering these rules, I urge you to remember that we were bound to follow the precedent set out by Region III Congress, and at the same time we had to construct rules that could adequately apply to Radio Societies of all backgrounds and widely different legal and social backgrounds.

As a result of our experience over the past year, I believe that I can offer some views for your consideration. I am particularly strongly that the Region III Association (as it is to be called) represents the area of the Southern Hemisphere, and in the next year, I consider that the integration of this activity with the Federal Executive's other activities is essential for the continuing consistency with the function of the Executive.

Our main immediate aim as a member of the Region III organisation should be twofold. Firstly, we must ensure that a final constitution adopted by the organisation is workable and conforms with the aims of the I.A.R.U. and the aims of the W.I.A. Secondly, we must ensure that the Region III Association Conference, using the Region III organisation, to advance the interests of all Amateur Societies in the preservation of Amateur frequencies.

I believe that the Region III organisation will remain one of the most important aspects of the W.I.A. activity in the next few years. The decisions of the Federal Council at this Convention as to how we are to achieve our aims in this matter will be, in my opinion, vital.

(c) **Further Determinations:** Executive has submitted the following motions to Federal Council for instructions on various aspects of this section of the Region III organisation.

1980/4.1: "The Federal Council ratify the action taken by the Federal Executive to date since the last Federal Convention in relation to the I.A.R.U. Region III organisation."

1980/4.2: "The W.I.A. approves the I.A.R.U. interim constitution."

1980/4.3: "The Federal Council determine a policy in relation to the appointment of W.I.A. Regional Officers in the Region III area."

1980/4.4: "The Federal Council approve in principle P.E. Officers also holding positions on the I.A.R.U. Region III organisation Secretariat whilst Australia is providing the secretariat."

1980/4.5: "Federal Council direct what is to be done with any surplus collected pursuant to motion 4.1.1 of 1968 for the I.A.R.U. Region III organisation."

## Section V—P.M.G. AND REGULATIONS

Only one motion in this section was passed at 1968 Convention.

1968/3.1.1: "That Divisions undertake to advise members of the existence of a gentleman's agreement in relation to operating modes of c and phone."

This was a motion arising from one to "request the P.M.G. Department to regulate the Amateur bands between telephony and c w. The motion was lost, and the above motion arising (3.1.1) was carried instead. No action was required of Executive by this motion.

Several matters however were taken by Executive to the Department as it is Executive's position under the M.C. Central Office on any matter which it feels may result in the granting of additional facilities to the Amateur Service, whether instructed by Federal Council or by the Department, or by one Division. So this appears an appropriate place for me to report to you generally on the matters undertaken with the Department by the Institute.

Firstly, may I say that the Institute still enjoys excellent relations with the Post Office. It is in fact in the area of the activities of Australia's Amateur Society, which is showing that it is viable, energetic, progressive, and, above all, useful. If I may take this point a little further—I am very concerned that we may at times forget the ultimate objective of the "Institute" defined as the "Amateur Service" and "the Amateur Divisions, together—that is, to represent the Amateur Service and to ensure that operating facilities and frequencies are available to the liberal as possible—to ensure the continued interest in our hobby, and therefore our survival. I feel there is a danger that we may forget the achievement of the Institute of greater significance than this ultimate objective. I personally consider it is the duty of every W.I.A. officer to ensure that the Institute to preserve the W.I.A. as a viable society able to effectively represent the Australian Amateur Service—especially to the Australian Post Office.

Shortly there may be a necessity to join in preliminary discussions pertaining to the forthcoming I.A.U. space frequency conference. We must present a strong, united voice at such discussions. My concern is that we may place too much of a burden of responsibility on the effect of some proposed action on the preservation of a "whole" Institute. Also I am concerned that the threat of unilateral action to achieve our objectives might, in fact, undermine the unity and strength of the voice of the Amateur Service.

Following our successful Convention/Congress last year, the Secretary-General, Mr. John A. S. Hildes, replied to my letter of thanks and said:

"Amateur pleased to note your appreciation of Post Office participation in the meetings and the successful outcome of the discussions concerning the particularly dealing with matters concerning the establishment of the Union of Region III, Amateur Societies. I wish you and the members of your Institute every success in achieving the aims and objectives of the Amateur Service."

May I ask you to ponder on the aims and objectives of the Institute, and the aims and W.I.A. officers. There should be no cause for feelings to be placed in such a poor perspective that the ultimate objectives are lost sight of!

## V.F.E. REPEATERS/TRANSLATORS

During 1968, the Tasmanian Division provided a letter to the Department, based on an unwritten repeater system in their State. Executive had previously been concerned with Federal Council in the matter of repeaters, and with repeaters in relation to W.I.C.E.N. activities. Some excellent material on repeater/translators systems was supplied by request from A.R.R. and other overseas Societies, and cases in relation to beacon transmitters were familiar to Executive.

Executive discussed the whole matter of repeaters with the P.M.G.'s Controller Radio Bands, and the results of negotiations were published to Federal Council and members generally.

"Agreement has been reached with the Department in relation to repeaters/translators as follows:

(1) The Department will approve the use of repeaters/translators in v.h.f. Amateur bands either on an experimental basis or on a permanent basis in the future.

(2) Such repeater or translator may either re-transmit within the same band or to another band. It is anticipated that such equipment will not be operated on frequencies below 144 Mc, though consideration may be given to operation in the 144 Mc band.

(3) Any application (to be made to the Superintendent Radio in the State concerned) will be considered on its merits and the Department will have regard to the following points:

(1) The number of translators permitted will be restricted to avoid undue interference in the band.

(2) The Department will require to be satisfied that the design and construction of the particular equipment in respect of which permission to operate is sought, meets the technical standard though reasonable allowance will be made for experimental devices. Use of additional additional technical points should be noted.

(3) The equipment should include arrangements for "fail safe" operation. In failure of any component, it will not cause the transmitter to lock on.

(4) The equipment shall be adequately repaired and maintained. The Department will of all essential meter readings obtained during each maintenance visit, the repairs, adjustments, and other work undertaken, and the purpose of operation (i.e. the times of

switching on and switching off of the translator.

(c) Any form of modulation appropriate to the band in use may be employed. Where system design requires, applying modulation may be provided to avoid modulation in excess of allowable limits as a function of received signal strength.

(d) No transmission shall take place in the absence of a received carrier or if so desired, voice or other modulation intended to convey intelligence.

(iv) The Department will have to be satisfied that a permanent installation is desired by a reasonable number of Amateurs in the area concerned.

(v) Net frequencies or other normally frequency channels will be available for both input and output channels of repeaters/transmitters, except where there is general agreement among Amateurs regarding such usage.

(vi) The Department will have to be satisfied that the equipment is safe from unauthorized operation and can be quickly turned off in case of malfunction.

(vii) The site chosen must be acceptable to the Department. Transmitters and receive frequencies shall be as approved by the Department. As the Amateur Service is a secondary service, the Department will have to be satisfied that there will be no interference with any other service which may be necessary in regard to the use of specific channels in these bands.

(viii) Transmitters for such equipment will be granted on a basis somewhat similar to the licensing of a radio club—namely, one individual Amateur will be nominated as being responsible for the operation of the equipment.

(ix) To avoid the need for repeaters/transmitters to be used for identification purposes, stations communicating through them should include in their calling procedure an indication that they are operating through a repeater/translator.

It is anticipated that all State Superintendents Radio will be aware of these arrangements presently. As the implementation of these arrangements may require some time, facilities that have been overlooked, some delays could occur.

The Department suggests that, wherever appropriate, the local W.I.A. organization should co-ordinate applications. It is suggested that persons seeking the use of these facilities should be asked to make personal contact with the appropriate officer in their State, to ensure the fullest possible mutual co-operation.

General: Once again the Institute was treated with great consideration by Mr. Carroll who we feel our relations with Mr. Carroll could be no more cordial. As is obvious, numerous questions surrounded the use of v.h.f. repeaters/transmitters. We feel the solution set out above is eminently reasonable.

Following the release of this information to members of the Institute, a general desire arose for a meeting to co-ordinate this new facility. A meeting was arranged, and held in Wodonga. Members from VECs, A, B, and I attended, and Divisions requested Executive's participation.

Executive members attended, acting as chairman and secretary. The meeting published detailed minutes and because the meeting had an "informal" status, Executive letter circulated postal copies based on agreements made at the Wodonga meeting.

(A) That the following policy be adopted in relation to repeaters/transmitters in Amateur bands:

(1) A service translator is a translator designed to be used by current mobile equipment using channels A, B and C and with no provision for extending the range of similar operation.

(2) An experimental translator is a translator for experimental use only, and is not to be used by specially designed equipment and not intended to provide a use for normal operation.

3. Net frequencies for service translators shall be 146.4 Mc input and 146.9 Mc output, and the secondary channel shall be 146.1 Mc input and 145.6 Mc output with 146.3 Mc input and 145.7 Mc output being reserved for future expansion of service translator facilities subject to prior national agreement.

4. The frequencies for experimental translators shall be 146.1 Mc input and 145.6 Mc output and also 430.730 Mc input and 431.90 Mc output.

5. All translators shall be designed for a deviation of plus or minus 15 Kc.

(B) That the following policy be adopted in relation to net frequencies—

1. That the primary national simplex 2 metre f.m. frequency be 146.80 Mc.

2. That the primary national simplex 2 metre f.m. frequency shall be 52.325 Mc., but

the 52.850 Mc. and 52.850 Mc. frequencies may be used as alternative 2-metre channels.

3. That the VKZ Division shall act as a Secretariat for the co-ordination of net frequencies including translator frequencies.

Voting on these motions has been in the affirmative by all Divisions. One point which was discussed with Executive by the VKZ Division was in relation to the status of a Secretariat. Executive has put the view that for any Institute activity involving co-ordination throughout Australia, irrespective of where the co-ordinating group or local Division in Australia the activity should be under the control of a Federal Co-ordinator. This officer is responsible for co-ordinating through Executive's Federal Activities Officer.

Executive feels that this follows established procedure and that the motion raised by motion for the 1969 Convention.

#### APEX, JATCES AND OTHERS

##### "ON THE AIR"

At the 1968 Federal Convention, the following motion was introduced as general business 1968/GB3 "That the Wireless Institute of Australia co-operate as far as possible with the Apex Clubs of Australia in their suggestion regarding Amateur Radio, contact with Apex Clubs in South-East Asia."

Executive was also independently approached by a representative of Jaycees for a similar reason. This was in relation to a Department, whose attitude was made clear and firm.

It appears that in the past the Australian Red Cross Society and various other organizations have made approaches, both at a Departmental and at a Ministerial level for permission to use Amateur frequencies for similar purposes. The Department is totally opposed to such activities on Amateur bands. It feels that "Jamboree on the Air" can be justified on the basis that one of the objects of that activity is to interest young people in Amateur radio, as a hobby, and the provisions of a communication facility, only part of the total object. In the case of other organizations, the express object of the exercise is to promote the organization's activities. The Department feels that if it makes an exception in the case of one of these, it could embolden other organizations to do the same, and be embarrassed in relation to other applications. It therefore seems probable that any applications by Jaycees or Apex will not be successful.

#### OTHER MATTERS RAISED WITH

##### F.M.G. DEPARTMENT

Several matters affecting particular Divisions were raised by stations during the year—including transmitter hunts and 6 metre operation in Queensland, and matters of call sign allocation. Divisions have been informed of results of Executive's representations.

#### I.T.U. CONFERENCE FOR

##### SPACE TELECOMMUNICATIONS

This is scheduled to be held at Geneva in late 1969 or early 1970. Executive has written to the Postmaster-General advising that if 1968 Australian co-ordinating committee is formed similar to the committee prior to previous I.T.U. Conferences, co-ordinating committees, our representative would be I.T.U. Liaison Officer VKIXV.

In view of the Postmaster-General, Executive stated that with the Amateur Service holding various assignments within the v.h.f.-s.h.f. range, it is essential that our I.T.U. representative have the opportunity for a hearing.

The Postmaster-General has replied to the effect that the Post Office will make all preparations required for this Conference. In so doing, it will co-ordinate proposals originating from sources within Australia, and co-opt for discussion as required representative services likely to be affected by such proposals and those of other countries which are to receive consideration.

Executive, who has been supplied with a copy of proposals which may affect the Amateur Service when they are submitted to I.A.R.U. Headquarters details of v.h.f.-s.h.f. activity in Australia, as requested.

Executive also means Quite a large number of motions in this section is before Federal Council for its discussion. Undoubtedly Executive will have to appear before the Post Office on some or all of these matters, or may be requested to represent Amateurs or Divisions from time to time throughout the forthcoming year. Executive will endeavour to continue to comply with Institute policy item P2 of 1961.

"That the Federal Council recommends that the Postmaster-General be not refused by the W.I.A."

## Section VI—CONTESTS AND

### AWARDS

These activities are administered by Executive through Federal Activities Officer on behalf of the Federal Council. Contests and awards from Convention are acted upon by the co-ordinator appointed by Executive, and no are issued. The co-ordinator reports annually to Federal Council, and therefore I will not report on contests or awards.

However, I wish to say a sincere thank you to the many who, so often after our contests and awards—the many hours of planning and recording are very much appreciated.

## Section VII—GENERAL MATTERS

Motion 1968/GS "That the Wireless Institute of Australia in a form appropriate to Amateur Radio, publish the anniversary of the arrival of Captain James Cook in Australia 1770-1970."

Executive has some suggestions as to the implementation of this motion, but as a formal motion requesting a report on progress made is before Convention, the matter will be deferred until the Convention.

1970 also co-incides with the 60th anniversary of the Institute, consideration of which is a matter before 1969 Convention for discussion.

Perhaps both can be suitably commemorated in the form of a special Executive call award. Federal Council's instructions to these and other commemorative matters.

Motion 1968/GB1 "That the appropriate authority be approached for approval to mint a special stamp to commemorate the launching of the first Australian Amateur satellite—the Australia I.—and that the W.I.A.'s sponsorship of the project be recommended to the Federal Council's instructions to these and other commemorative matters."

Past Federal President investigated the matter of commemorative stamps and reported that a commemorative postage stamp depicting Amateur radio would be possible if a strong application were made soon enough. He was pleased that any application would be enhanced if it could include a celebration date or something of the kind. He recommended that the authorities work in advance on a two-year project, and that the W.I.A. should be involved in any launch of Australia or other Amateur satellite in the near future, according to reports received by Executive, we feel that no harm would be done in this direction. However, Executive now is in a position to advise Federal Council on future commemorative stamps or other.

Motion 1968/GB2 "That because of the overstatement of expenses of the Federal Convention held in Brisbane in 1968, in future state-ment of expenses of the Federal Convention, the detail of expenses be limited to costs relating directly to the Convention, and incurred only on behalf of the Executive and Council, and do not include expenses incurred by Divisional observers and others which are directly refunded by donors or others."

In accord with instructions contained in this motion, Executive provided Federal Treasurer and Institute Auditor with a detailed breakdown of the 1968 Convention/Congress. This will be a matter of report by the Federal Treasurer, but Executive wishes to state that the 1968 Convention/Congress was not a result of overseas publications distribution by Executive.

The granting of commission to Amateur Societies for handling their publications was an act of deliberate policy by A.R.L. Board of Directors, and was not a result of any expenditure in a way designed to advance Amateur Radio in this Region, and was pleased that no harm fell on W.I.A. members in way of per capita recovery, for the Region III Congress.

Motion 1968/GS1 "That the term Heris and its associated terminology be discontinued in publications, at the discretion of the Publications Committee."

This matter was referred to the Publications Committee who decided that the term was not to be using the herizian terminology. No action is required of Executive.

Motion 1968/GS4 "That Federal Executive report on the position of the Institute in relation to the brochure 'How Can I Become a Radio Amateur', and endeavour to arrange for early delivery to Divisions."

Executive has reported that Past Federal President tabled an up-dated draft of this booklet. On examination by Executive, there was no reason to believe that the booklet was not the delivery date to Divisions is still indeterminate.

Motion 1968/GS5 "That Federal Council recommends that the Postmaster-General be not refused by the W.I.A."

"That the Federal Council recommends that the Postmaster-General be not refused by the W.I.A."



ator of the Wireless Institute of Australia Youth Radio Scheme."

Executive has acted in accordance with this Federal Council recommendation.

1969/GB7 "That the Divisions agree on a common form of application for membership for inclusion in the Institute's publication."

Divisions have provided information to the Publications Committee who published an insert to "Amateur Radio" for March to accompany a Federal Comment. Some Divisions have commented favourably on the effect this has had on membership applications.

1967/GB6 "That the W.I.A. encourage members to meet foreign students in Australia, and invite them to visit Amateur Radio installations with Amateurs in the student's home countries are in progress."

Executive has been unable to take any action in regard to this motion during the past year. Resolution "That a review of the Policy Book be not undertaken at Convention, but that Federal Councilors peruse the Policy Book during the year and communicate any suggestions to Federal Secretary."

Executive has received no suggestions during the past year from Federal Councilors in relation to the Policy Book. Some motions before 1969 Federal Convention may require subsequent amendments to the Policy Book.

Years of 1969 Conventions Extract from 1969 Minutes of Federal Convention

"During VK6's invited Federal Council to come to Perth in 1969.

"VK3 referred to the cost of Conventions in VK6, and the fact that the last one was subsidised by the VK3 Division.

"Federal Secretary suggested that Federal Executive and the VK6 Federal Councilor examine the aspect of the cost of a projected Convention in Perth and report to Federal Council.

Resolved to that effect, with tentative agreement that VK6 be the next venue—depending on Executive's report on costs."

Executive discussed the matter with VK6 Federal Councilor and in order to effectively report to Federal Council, felt it would be relevant to consider an alternative to Perth. Accordingly, a unofficial approach was made to members of the Canberra Radio Club

to provide some facts which could be placed before Federal Council giving an alternative venue to Perth.

A budget of costs for a Convention in Perth, as compared with a Convention in Canberra, was provided to Divisions in accord with policy item 501. Approval for Canberra as a Convention venue was received from all States.

The Constitution and Policy Book are silent on methods of determining Federal Convention venue—it is customarily held in Divisions in rotation and by invitation; however, the matter has been brought forward for discussion by Federal Council.

Membership: At the time of writing this report, membership figures are incomplete. The returns from VK6 and VK1 have been regular, but from other Divisions they are somewhat erratic. Executive would appreciate it if a report on February membership from each Division could be submitted at Canberra. Licensed Amateurs in VK totalled 5792 in December 1968.

Notable Achievements: It may be of interest to members to learn of some notable Amateur activity in the v.h.f.-u.h.f. range, carried out recently in N.S.W. and Queensland, on 1296 Mc

On 24th December, 1969, VK2ZCF/2 worked VK6ZAN over a 35-mile path. This bettered the existing Australian record by about 18 miles. On the same day, VK4TE worked VK4KE/4 over 53 miles which also bettered the previous record.

On 31st January, 1969, VK2ZCF/2 worked VK2ZAC-71 miles—and VK4KE/4 worked VK6ZAN over 113 miles. Finally, on 3rd February, 1969, VK4KE/4 and VK4ZT/4 made two-way contact over a 138-mile path and this last mentioned contact will become the Australian record.

Personal Contact: During the year, some opportunities for personal contact between Federal and Divisional officers occurred. The VK3 Federal Councilor visited VK3 and New Zealand, and met with VK3 officers and also N.Z.A.R.T. officers. VK3 Federal Councilor visited Victoria and met with members of Executive and VK3 officers. VK2 and VK7 Councilors and some members met with members of Executive, and the VK3 Federal Councilor, at a Christmas Party arranged by Federal Secretary's XYL. Federal President and

Vice-President were invited by VK7 Council to visit Tasmania and discuss Federal problems with them. Federal President and his XYL were the guests of the VK2 Division at their annual Convention dinner recently. At the Wodonga repeater conference, personal meetings between VK2, 3, 5 and 7 officers and members of Executive occurred.

These and many other opportunities for personal contact were taken by Executive, as we feel that often problems arise in our organisation through "breakdown of communications" between people.

Executive has placed before Federal Council for discussion, and decision, the matter of N.Z.A.R.T.'s invitation extended in W.I.A. Federal President to attend their Gisborne Convention in May 1969. Executive believes that we should seize all opportunities to visit Divisions and other countries, if invited.

Oscar-Australis Satellites No report has been received from the group undertaking these activities. However, we are informed by I.A.R.U. Headquarters that the general situation is best described as confused, and setting an Amateur satellite launched is not as easy as it seems. There appears to be vigorous discussion on the future among the Oscar group, and it is reported that a new group in the East Coast area has formed a body similar to the OSCAR body with basically the same aim. This new group will probably work closely with the old group, but things generally in U.S.A. are unsettled.

As Australia would rely on the provision of launch facilities by U.S.A., the position in this country is therefore indeterminate.

## Section VIII.—CONCLUSION

In concluding this review of the past year, I am aware that a number of errors of judgment may have been made. We, as Executive, must also concede that in respect of other matters we may not have always done things in a way that would be acceptable to all of our members. However, we believe that Executive has performed an important role in the affairs of our Institute, and has contributed to the advancement of Amateur Radio both within Australia and internationally.

(Continued on Page 28)

## WIRELESS INSTITUTE OF AUSTRALIA—FEDERAL EXECUTIVE

### STATEMENT OF INCOME AND EXPENDITURE for Year ended 28th February, 1969

1967/68	1968/69
<b>INCOME:</b>	
\$215 Interest received .....	\$230.46
1,157 State Contributions—per Capita .....	1,223.70
317 Surplus Publication, Badges .....	485.27
Refund Expenses, Youth Radio Scheme .....	47.26
<b>\$1,889</b>	<b>\$1,986.81</b>
<b>EXPENDITURE:</b>	
882 Audit Fees .....	\$31.50
133 Depreciation .....	154.48
52 R.D. Contest .....	2.50
41 Awards Committee .....	10.90
41 QSL Bureau .....	40.80
34 Contests Committee .....	28.81
38 Maintenance, Office Equipment .....	604.21
10 Floral Tributes .....	8.00
2 P.M.G. Licence .....	2.00
1 R.S. .....	30.00
168 Travelling Expenses .....	57.60
203 General Expenses .....	52.37
507 Stationery, Postage, Telephone .....	604.21
203 Salaries .....	570.10
16 Insurance .....	27.80
8 Interest, I.T.U. Fund .....	517.77
16 R.S. .....	—
115 Australia .....	—
44 Badges .....	—
30 Subscriptions .....	1,878.26
<b>\$1,695</b>	<b>\$1,250.55</b>
<b>\$189</b>	<b>\$736.26</b>
<b>Deficit</b>	<b>Surplus for Year</b>

### BALANCE SHEET as at 28th February, 1969

1967/68	1968/69
<b>CURRENT ASSETS:</b>	
Commonwealth Trading Bank—	
Federal Executive .....	\$1,407.84
Publications .....	381.96
I.T.U. Fund .....	6,484.88
263 Sundry Debtor .....	854.88
445 Stock on hand—at lower of cost or market value .....	125.11
Prepayments .....	131.34
<b>\$9,447.00</b>	<b>\$9,447.00</b>
<b>FIXED ASSETS:</b>	
Furniture, Fittings and Equipment at cost less depreciation .....	1,213.27
<b>TOTAL ASSETS</b>	<b>\$10,660.27</b>
<b>Less</b>	
<b>CURRENT LIABILITIES:</b>	
Reserve Fund .....	\$765.00
I.T.U. .....	\$,306.45
Sundry Creditors .....	91.40
<b>7,145.05</b>	<b>7,145.05</b>
<b>ACCUMULATED FUNDS:</b>	
Balance, 1st March, 1968 .....	\$4,250.16
Add Surplus for year .....	120.55
<b>\$4,370.71</b>	<b>\$4,370.71</b>
<b>Less Region III Congress</b>	<b>\$2,514.22</b>

## AUDITORS' REPORT

We have examined the books and vouchers of the Wireless Institute of Australia (Federal Executive) for the year ended 28th February, 1969. In our opinion the accompanying Balance Sheet is properly drawn up so as to give a true and fair view of the state of the affairs of the Federal Executive as at 28th February, 1969, and the attached Statement of Income and Expenditure is properly drawn up so as to give a true and fair view of the results for the year ended 28th February, 1969.

Melbourne,  
14th March, 1969

Hebard and Gunning,  
Public Accountants





# NEW CALL SIGNS

NOVEMBER 1968

VK1FX-F W. Nairn, 2/25 Delmar Pde., Gadsden, 113  
VK1AGV-G M. Dowse, 18 Davidson Ave., Woonona, 2517  
VK1AVY-Peter, High School Radio Club, Station Penrith High School, Postal: 80 Great Western Hwy, Springwood, 3777  
VK1BJC-C Chessel, 2 Euphon Court, The Mangles, Ashfield, 2131  
VK1ZOT-D K. W. Bradbury, "Karnie", 281 Durrigale, 2748  
VK1ZJA-J. B. Bowmaker, 15 Akuna St., Melbourne, 2592  
VK1ZJ-J. F. Davis, R.A.A.F. Base, Richmond 2753  
VK1ZKL-J. Thomas, 81 Hanbury St., Wentworthville South, 2145  
VK1ZKV-K. J. Cox, Stuart Hwy, Forest Hill, via Wugga Wugga, 2650  
VK1ZLA-J. L. M. Andrews, 49 Lord St., Roseville, 2068  
VK1ZML-M. Mansfield, 33 Bundarra Rd., Bellevue Hill, 2023  
VK1ZNC-T. N. A. Dunn, 8 Pat Hargraves Pl., Manlyville, 2025  
VK1ZPX-P. W. Walton, Station 605 Harding St., Deniliquin, Postal: P.O. Box 267, Deniliquin, 2710  
VK1ZSS-S. Wilson, Unit 2, 78 Lauderdale Ave., Fairlight, 2094  
VK1ZSM-S. K. Boardman, 108 Chelmsford Ave., E. Lindfield, 2070  
VK1BR-T. R. Russell, 1 Cedar Crt., Forest Hill, 2131  
VK1ACT-T. R. Lakey, 33 Giles St., Mirboo North, 3671  
VK1ABE-R. A. Hipwell, 57 Pier St., Dromana, 3938  
VK1AK-K. J. Ebberts, Lot 18, Bahama Crt., Vermont, 3135  
VK1AOC-G. Q. W. Nisio, 14 Elaine Crt., Manlyville, 3171  
VK1ZDS-D. M. Shaw, Myrrine, Wangaratta, 3723  
VK1ZEW-E. A. Strouds, Lot 26, Shelley Ave., Baywater, 3123  
VK1ZOG-P. G. M. Bruer, Flat 11, 59 Tivoli Rd., South Tarras, 3041  
VK1ZSR-S. R. Birchbeck, Richmond St., South Blackburn, 3130  
VK1AE-J. D. Elphinst, Station: 281 Rode Rd., Cherridge, 4033, Postal: 394 Rode Rd., Cherridge, 4033  
VK1DY-A. J. Chappel, D'Agulair, 4613  
VK1HO-C. Churn, 1 Bolland St., North Ward, Townsville, 4810  
VK1AL-L. L. Latham, 210 Alma St., Rockhampton, 4700  
VK1KC-C. J. Griffiths, 1 New St., Nerang, 4024  
VK1MU-H. W. Marks, 28 Renita St., Aspley, 4024  
VK1NO-E. T. Norris, 10 Hume St., Toombomba, 4350  
VK1AOB-Rockhampton District Boy Scouts Radio Club, Station: Seewee Park, Rockhampton, 4700, Postal: Fitzroy St., Rockhampton, 4700  
VK1AO-P. J. Murdoch, 20 Sixth Ave., Palm Beach, 4221  
VK1QQ-P. M. Sutton, 35 Charles St., Gladstone, 4686  
VK1TK-J. M. Campbell, 31 Kamsarin St., Manly, 4175  
VK1ZPW-P. A. Weir-Smith, MG27, Borneo Barracks, Cribbfield, 4350  
VK1ZTR-T. Connolly, 80 Brubai St., Coorua, 4245  
VK1ZTS-G. T. Schott, Woundi Rd., Bell, 4048  
VK1SE-W. E. Dixon, 18 Mosterton Rd., Elizabeth Park, 5115  
VK1ZAC-E. W. Deakin, 109 French Tce., Port Pirie, 5240  
VK1ZAH-P. R. Purise, 33 Enterprise Rd., Elizabeth Park, 5112  
VK1ZBU-M. Sutton, 10 Price Ave., Klemzig, 5087  
VK1ZCE-R. J. Sleser, 236 Victoria Tce., Hawke, 5062  
VK1ZCR-N. L. Reseck, 8 North Pde., Kingswood, 5062  
VK1ZCQ-C. J. McLaughlan, 7 Austral Tce., Morphettville, 5043  
VK1ZSL-P. Lawson, 1 Doreen St., Prospect, 5052  
VK1ZSD-P. Legg, C/o Morris Hotel, Innaloo, 6019  
VK1ZSD-A. W. Pike, 8 Latham St., Alfred Cove, 6054  
VK1ZSP-J. Thornett, 1196 Acanthus Rd., Riverton, 6125  
VK1ZAF-J. Sison, Station 4417 Bulbul St., Ludmilla, Darwin, 5790, Postal: Box 2457, Darwin 5794  
VK1AZ-B. Gardiner, 2012 Young Cres., Alawa, Darwin, 5790

VK1PB-A. D'Arcy, 1850 Trower Rd., Alawa, Darwin, 5790  
VK1ZKA-P. M. Van der Velden, Flat 1, 2332 Austin Lane, Darwin, 5790  
VK1KH-D. G. Hallam, Station: Camis Cres., Section 11, Lot 51, Lae, N.G.: Postal: C/o O.T.C. Box 251, Lae, N.G.  
VK1SLA-Lae Amateur Radio Club, Station: 1850 Trower Rd., Hon. Secretary, Lae, N.G. Postal: C/o Hon. Secretary, P.O. Box 790, Lae, N.G.

## CANCELLATIONS

VK1AUW-P. R. Crosthwaite, Not renewed  
VK1ZOG-R. J. Griffiths, Now VK1KAM  
VK1ZRH-J. H. Thompson, Not renewed  
VK1ZBM-G. M. Browning, Not renewed  
VK1ZBR-W. R. Kinsdale, Not renewed  
VK1ZGL-P. T. Klompburg, Transferred Interstate  
VK1ZRT-T. R. B. Russell, Now VK1BR/T  
VK1ZVO-R. J. Clark, Deceased  
VK1ZAC-S. J. Anness, Science Club C.E.G.S., Sale, Ceased operation  
VK1ZQC-B. J. Lakey, Now VK1ACT/T  
VK1ZES-P. A. Strouds, Now VK1ZEW  
VK1AD-A. D'Arcy, Now VK1PB  
VK1ABT-N. W. Atkinson, Not renewed  
VK1ZCA-A. J. Chappel, Now VK1DY  
VK1ZCL-H. Campbell, Not renewed  
VK1ZCK-W. P. Hazell, Transferred New South Wales  
VK1ZCL-C. C. Bunn, Ceased operation  
VK1ZCL-T. W. Lucas, Now VK1AO  
VK1ZLS-A. L. Stehn, Now VK1AS  
VK1SD-W. T. Lucas, Not renewed  
VK1SNC-K. G. Ellis, Ceased operation  
VK1ZEA-I. C. Saity, Not renewed  
VK1ZET-E. R. Tuohy, Not renewed  
VK1ZEC-P. M. Van der Velden, Now VK1ZKA  
VK1ZJM-J. F. Meehan, Transferred to N.S.W.  
VK1AL-A. Nickols, Left Antarctica  
VK1OL-D. P. James, Left Antarctica  
VK1JW-J. G. Kaarsberg, Left Antarctica  
VK1VK-V. J. Kitley, Left Antarctica

## DECEMBER 1968

VK1AD-G. M. Brown, Station: 3 Palmer St., Garra, 2606, Postal: P.O. Box 153, Garra, 2606  
VK1LF-L. B. Fisher, 1 Elder St., Braddon, 2601  
VK1ZJH-J. J. Hyne, Station: 15 Perkins Pl., Braddon, 2607, Postal: P.O. Box 1371, Canberra City, 2601  
VK1ADE-P. N. Leverrier, 21 Allamby Rd., Canberra, 2606  
VK1AGJ-C. P. Daw, "Woodlands," Wombat, 3600  
VK1BA-B. Cowen, High School Radio Club, 8 Walker St., Cowra, 2794  
VK1BEW-E. A. Woodbridge, 2 Dorman Cres., Lindfield, 2070  
VK1BR-B. Brunette, 31 Elford Ave., Baulaba Heights, via Rathmines, 2283  
VK1BVR-V. A. Rochfort, 1 Hemingway Cres., Fairfield, 2165  
VK1ZDD-D. J. Williamson, 18 Market St., Bankstown, 2200  
VK1ZFR-A. C. Connell, 11 Allandale St., Belfield, 2223  
VK1ZSV-B. S. Stevenson, 21 Glenowave Ave., Eastwood, 2123  
VK1ZZZ-Z. J. Wain, 25 Strathlora St., Strathfield, 2132  
VK1ZAJ-D. Lundy, 90 Dalry Rd., Murrumbidgee, 2163  
VK1KC-W. A. Dennison, Station: 44 Johnstone Rd., Oaklands Park, 3046, Postal: Dept. of Physics, University of Adelaide, Adelaide, 5000  
VK1ZOD-M. J. Groth, 73 Charles St., Prospect, 2070  
VK1SPA-A. Matthews, 11 Garr St., Goodwood, 5034  
VK1ZQG-G. E. Southgate, 303 Wright Rd., Valley View, 5053  
VK1ZGR-R. C. Cunningham, 58 Teusner Dr., Morphett Vale, 5152  
VK1GR-F. F. Frost, C/o N.A.S.A. Space Administration, 4000, 4701  
VK1GGT-G. J. Bedwell, 43 Pandora Dr., City Beach, 6015  
VK1GW-W. G. Carlton, 5 "Santa Barbara," Hastings St., Scarborough, 6015  
VK1ZGH-C. P. Cavan, Station: Carnarvon; Postal: P.O. Box 88, Carnarvon, 6781  
VK1TR-T. J. Morgan, 110 Hampden Rd., Hobart, 7000  
VK1TC-Hobart Teachers' College Electronics Club, 2 Edward St., Goble, 7000  
VK1ZCD-C. J. Danforth, 84 Philosopher St., Savage River, 7231  
VK1DA-Darwin Radio Club Incorporated, Station: 1 Kerin Pl., Rapid Creek, 5785, Postal: P.O. Box 1097, Darwin, 5794  
VK1KY-K. Yun-Hong Young, C/o Ionospheric Prediction Service Station, P.O. Box 31, Cessie (Keele) Island, Indian Ocean

## CANCELLATIONS

VK1BH-A. M. Brodick, Transferred to N.T.  
VK1ZJ-J. S. Vardy, Not renewed  
VK1ZB-R. F. Owen, Not renewed  
VK1ZPL-L. B. Fisher, Now VK1LF  
VK1BRP-R. C. Frost, Not renewed  
VK1ZAT-J. L. Harrison, Transferred to W.A.  
VK1ZQZ-G. V. Comber, Not renewed  
VK1ZES-S. A. Brunette, Now VK1ZEW  
VK1ZAB-E. A. Ward, Not renewed  
VK1ZMK-J. D. Lundy, Now VK1AZ  
VK1AYH-E. A. Hayward, Not renewed  
VK1SL-N. W. Atkinson, Ceased operation  
VK1ZBR-T. R. B. Russell, Transferred to N.S.W.  
VK1ZBR-M. R. Haakard, Ceased operation  
VK1ZDR-A. J. Chappel, Ceased operation  
VK1ZNG-M. G. Groth, Now VK1ZD  
VK1ZPM-P. A. Matthews, Now VK1SPA  
VK1GD-H. R. Geldard, Deceased  
VK1ZEF-R. F. Frost, Now VK1SR



## W.I.A. ANNUAL REPORT

(Continued from Page 86)

One feature of the year under review has been the stringent criticism the Executive has received from one Division. I do not believe that that criticism has on all occasions been unfounded, neither do I consider that we have received any generosity or understanding from that Division. The effect has been to divert our attention from progress in our normal activities to the, at times, seemingly interminable disputes. Another effect has been to magnify small matters to an importance they do not justify.

So, for the forthcoming year, we seek the consideration and understanding of all the Divisions. To expect the best from honorary officers subject to the unrelenting pressure of the past year is unrealistic. There must be occasions when there is a legitimate and justified difference of view between a Division and the Executive, as there must be between Division and Division.

To resolve these differences, to reach agreement, to advise Executive of the execution of these agreements is the purpose of a Federal Convention. Except in the most unusual case, these cannot be satisfactorily resolved by the unilateral exercise of non-constitutional power by one Division.

Likewise, it should be remembered that at times when information is sought, the Executive, in its respect, may not have completed its task. To demand that the Executive justify what it has only half done is not to extend restraint and is unrealistic.

In the forthcoming year then, let us all try to avoid a repeat of the past year, let us all exercise some tolerance and understanding and also let us all remember that in most cases there is room for two quite legitimate but different views on the same subject, but proper procedures exist whereby one part of the Executive attempt to convince the Institute as a whole of the worth of its views. So Executive seeks the personal support of each Divisional Council, not above all, we believe should not engage in actions that are, whether justified or not, destructive of the Institute as a whole. We also hope that all parties to the Executive or organization will support their personal divisional, or other unique viewpoints in the interests of the Institute as a whole. We also allow the Institute as a whole to use established procedures to determine for itself what is in the best interests of the "Institute". There is only one institute—we are all but one of it. No one part of the W.I.A. is greater than the W.I.A.

In summary, gentlemen, I believe that this Executive has generally acted vigorously and conscientiously in support of the W.I.A. over the past year. In spite of difficulties, much has been achieved. However, we do not feel that we have always been given a "fair go".

—JOHN B. BATTRICK, VK3JOR, Federal President, W.I.A.

## TECHNICAL ARTICLES

Readers are requested to submit articles for publication in "A.R." in particular constructional articles, photographs of stations and gear, together with articles suitable for beginners, are required.

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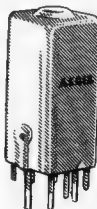


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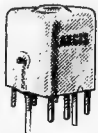
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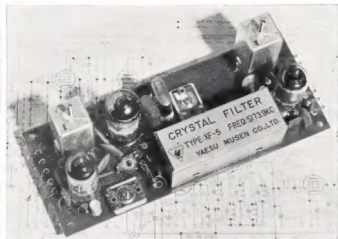
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## **Changes for Mobile Radiotelephone Services**

Licenseses of V.H.F. land and harbour mobile radiotelephone services, now operating in 30 kc/s channelling areas, are advised that if they have not already installed equipment which meets the Australian Post Office 30 kc/s channelling specification, they must do so before 30 June, 1969.

This requirement has been brought about by the growing demand for V.H.F. mobile radiotelephone services in city areas which is taxing the existing channels available. The change to 30 kc/s channelling will enable more radiotelephone services to be brought into operation as they are required.

However, some changes to existing equipment will be necessary and the following programme for conversion, which is designed to cause the least inconvenience to all concerned, has been adopted:—

As from 30 June, 1969, licenseses of V.H.F. mobile radiotelephone services operating in 30 kc/s channelling areas within the frequency bands 70-85 Mc/s and 156-174 Mc/s\* will be required to make necessary changes so that:—

- (i) All base station transmitter/receivers (both amplitude and angle modulated) employed in a base station installation shall be of a type complying with the relative Post Office specification and approved for 30 kc/s operation and shall be operated in accordance with the terms of that specification.
- (ii) All angle modulated mobile transmitters shall be adjusted to function with a maximum deviation of  $\pm 5$  kc/s.

\*This excludes the International Maritime Mobile V.H.F. Radiotelephone and the existing Australian Post Office Subscriber Services.

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455 Kc. centre frequency, 55 db. gain, uses two PNP transistors and diode detector. Bandwidth 5 Kc. at 6 db. DC requirements: 6 volts at 2 mA.

Price: \$9.70

Plus pack and post 25 cents

### VALVE SPECIALS

ATS25 ceramic base 807, 70c or three for \$2.

815, 70c.

6AC7, 20c or 12 for \$2.

6J6, 30c or 7 for \$2.

6CQ6, 20c or 6 for \$1.

VR150/30, 75c or 3 for \$2.

OB2/250 (813), new and boxed, \$7 ea.

6H6 metal, 20c each.

DM71 indicator tube, 40c ea. or 6 for \$2.

6F33, 30c ea.

### RESISTORS

Mixed Values

\$2 per 100

plus postage 20 cents

### CAPACITORS

Mixed Values

80 for \$2

plus postage 20 cents

## STAR ST-700 TRANSMITTER

SSB — AM — CW

80 Metres to 10 Metres

- Ultra-precision three-stage double gear tuning mechanism, completely free of backlash, spreads each 600 Kc. over 1.68 metres with 1 Kc. dial calibrations.
- Stability better than 100 cycles. "Vackar" type VFO. Voltage regulated power supply.
- Uses mechanical filter at 455 Kc. specially designed for SSB. Selectable upper or lower sideband. Carrier and sideband suppression 50 db. or more.
- May be connected with STAR SR-700A receiver for transceive operation.
- Fully adjustable VOX and ANTITRIP circuits for automatic transmission/reception.
- Press-to-talk relay, break-in keying and sidetone oscillator for CW monitoring.
- Automatic level control circuit assures high quality distortion free SSB.
- Built-in antenna relay.
- Final stage uses two 6146s in parallel with conservatively rated input of 250 watts PEP on SSB and CW, 100 watts on AM.
- Built-in heavy duty power supply with adequate reserve margin assures trouble-free operation.
- Power supply 220 to 240 volts AC 50 cycles.

Price: \$519.50

### CARBON POTS

20 cents ea.

### WIRE-WOUND POTS

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### 3000 TYPE RELAYS

large range

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mainly 24 volts

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### TRANSISTORISED COMPUTER BOARDS

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FULL RANGE OF MULTIMETERS

## STAR SR-700A RECEIVER

SSB — AM — CW

- Ultra-precision three-stage double gear tuning mechanism, completely free of backlash, spreads each 600 Kc. over 1.68 metres with 1 Kc. dial calibration.
- Stability better than 100 cycles. "Vackar" type VFO. Voltage regulated power supply.
- Triple conversion, IF's 1650 Kc. and 55 Kc. First and third oscillators crystal controlled.
- Imagine ratio better than 60 db. on all bands. Beat interference below noise level.
- Variable selectivity band pass filter at 55 Kc. provides steep cut offs and a good shape factor. Four positions: 0.5, 1.2, 2.5 and 4 Kc. (at 6 db. down).
- T-notch filter provides better than 50 db. attenuation.
- Variable decay AGC. Variable BFO tuning.
- Output terminal on VFO for transceive operation.
- Product detector for SSB/CW. Diode detector for AM.
- Noise limiter with adjustable clipping level operates on AM, SSB and CW.
- Built-in 100 Kc. crystal calibrator (crystal included). Zero adjustment on VFO.
- Sensitivity better than 0.5  $\mu$ V. for 10 db. S + N ratio on SSB and CW, better than 1  $\mu$ V. on AM.
- Power output, 1 watt. Impedance, 4 ohms.
- 13 tubes, 6 diodes.

Price: \$461.50

### MARCONI TF885A VIDEO OSCILLATOR

Price: \$120

### SANSEI SE405 S.W.R. METER

1 Mc. to 150 Mc., also doubles as a Field Strength Meter

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- ★ 100K O.P.V. ON D.C. 10K O.P.V. ON A.C.
- ★ OVERLOAD PROTECTION.
- ★ MIRROR SCALE.



### Ranges:

D.C. Volts: 0-0.6, 3, 12, 60, 300, 1,200.

A.C. Volts: 0-6, 30, 120, 300, 1,200.

D.C. Current: 0-12  $\mu$ A., 300  $\mu$ A., 6 mA.,  
600 mA., and 12 A.

A.C. Current: 0-12 A.

Ohms: 0-20 megohms in four ranges.

Centre Scale Reading: 150, 1.5K 15K, and  
150K ohms.

DB.: -20 to +17. 0 db. = 1 mW. in 600  
ohm line.

Weight: 2 1/2 lb. Size: 7" h. x 5 1/2" w. x 2 1/2" d.

### TRADE PRICE:

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